ENGINEERING NEWS-RECORD

Probing deep beneath 'Quoddy's fast tides *p. 60*

A McGRAW-HILL PUBLICATION

Taming over 7 Trillion Gallons of Turbulent Missouri River

CB&I Surge Tanks Serve Garrison Dam

When completed, the new Garrison Dam, opened in January 1956 near Riverdale, North Dakota, will provide 400,000 kilowatts of power, provide flood control and needed irrigation for large areas of both North and South Dakota. Its huge reservoir will form a lake 200 miles long to hold 7,494,573,000,000 gallons of, once turbulent, Missouri River water.

To control the now man-made turbulence of these waters as they race from reservoir to power tunnel, Army engineers of the Missouri River Division will rely on the six CB&I surge tanks shown above.

These 65 ft. diam. by 135 ft. high tanks are typical of pipelines, penstocks and steel plate structures CB&I has built for hydroelectric generating plants and for water diversion projects all over the world. Our plants are fully equipped and competently staffed to design, fabricate and *erect* such structures to *your* specifications. Write our nearest office for details.

Worm's-eye view looking up through safety net to boom tower used during erection of CB&I surge tanks at Garrison Dam.

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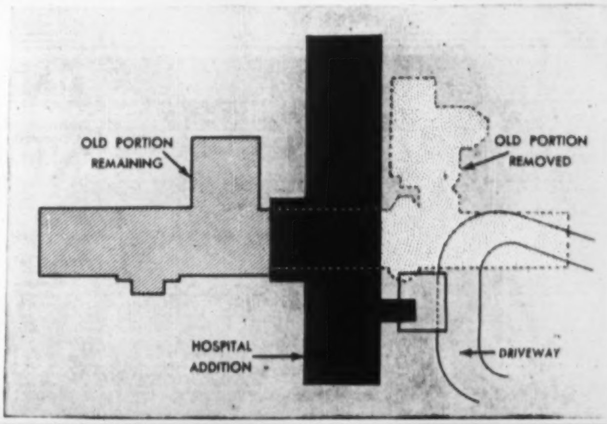

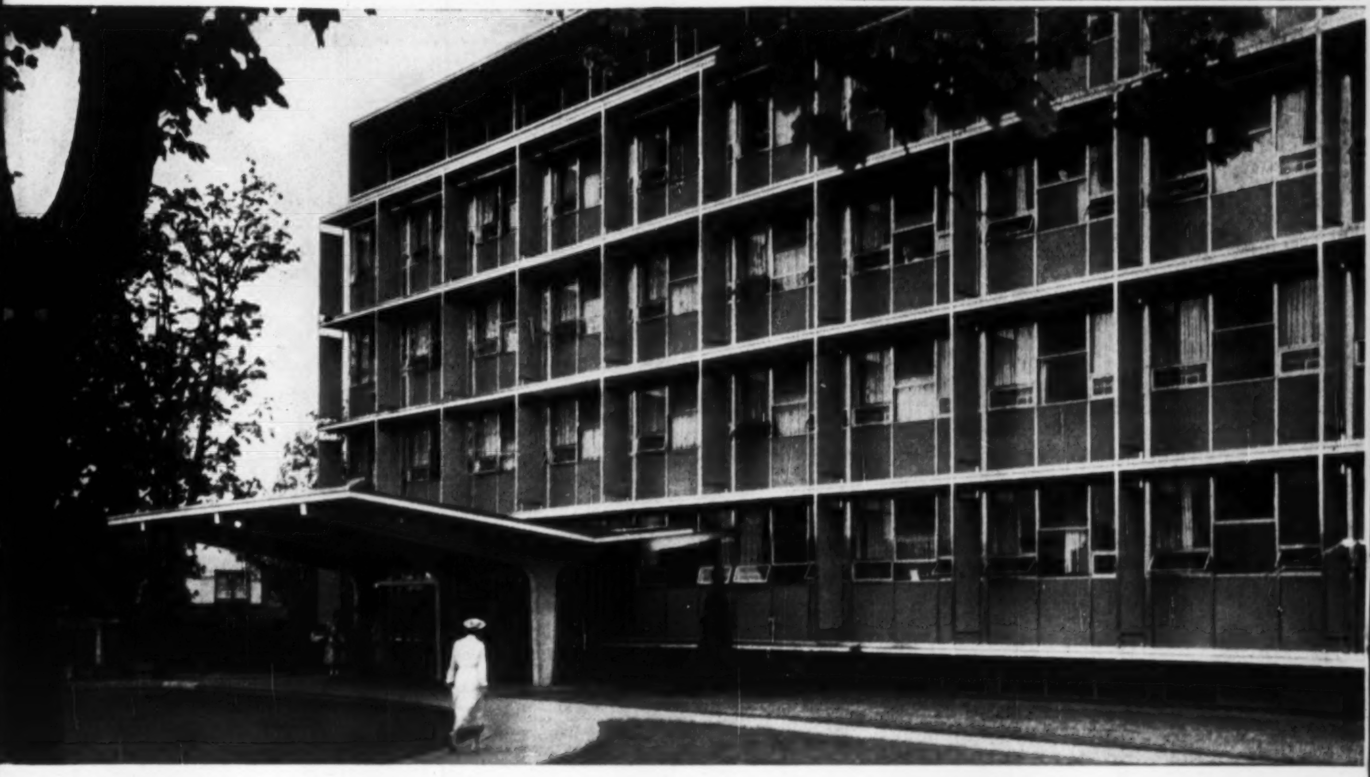

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Vincent G. Kling, Architect AIA, Philadelphia, Pa.

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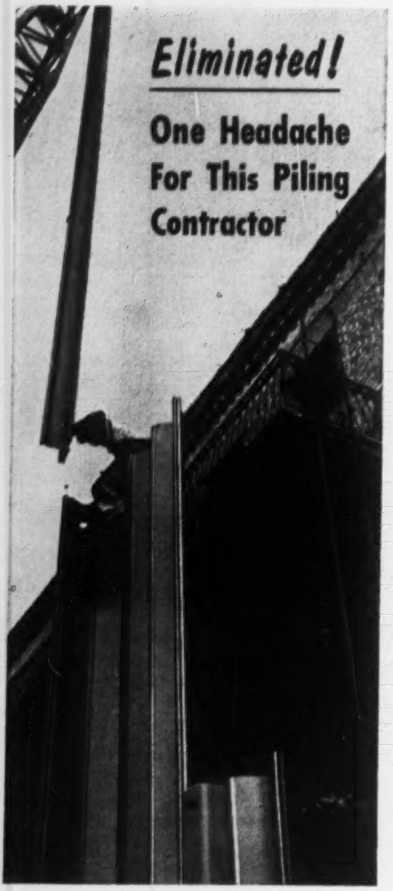

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6046

PROJECT: Stark County, sewer expansion project, Canton, Ohio.

ENGINEER: A. T. Hall, Stark County Sanitary Engineer.

CONTRACTOR: Shullo Construction Co., Akron, Ohio.

PIPE: United States Concrete Pipe, 24" diameter, TYLOX coupled, manufactured at Palmyra, Ohio.

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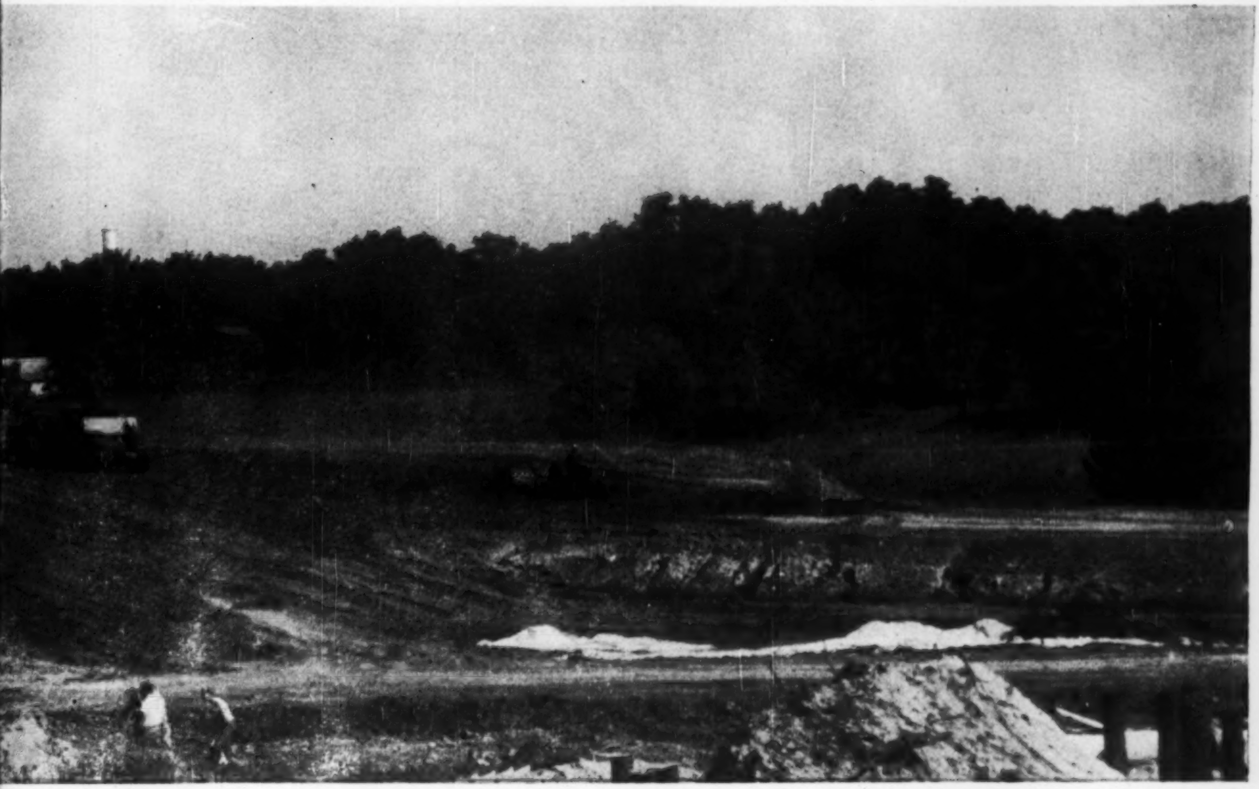

Over a million cubic feet of grading will be done on this roadway construction job in Monroe County, Georgia. W. L. Robinson Construction Company depends on Gulf petroleum products to avoid mechanical delays.

keep equipment rolling on Georgia Highway Project

Now under construction is Georgia's first interstate project under the new Federal Highway Act.

The job consists of 3.179 miles of roadway construction on Route 19 in Monroe County. More than 1,300,000 cubic feet of grading will be required in building 3 highway grade separations with parallel service roads on each side of the 4 lanes. W. L. Robinson Construction Company of College Park, Georgia, is the contractor on this million-and-a-half dollar job.

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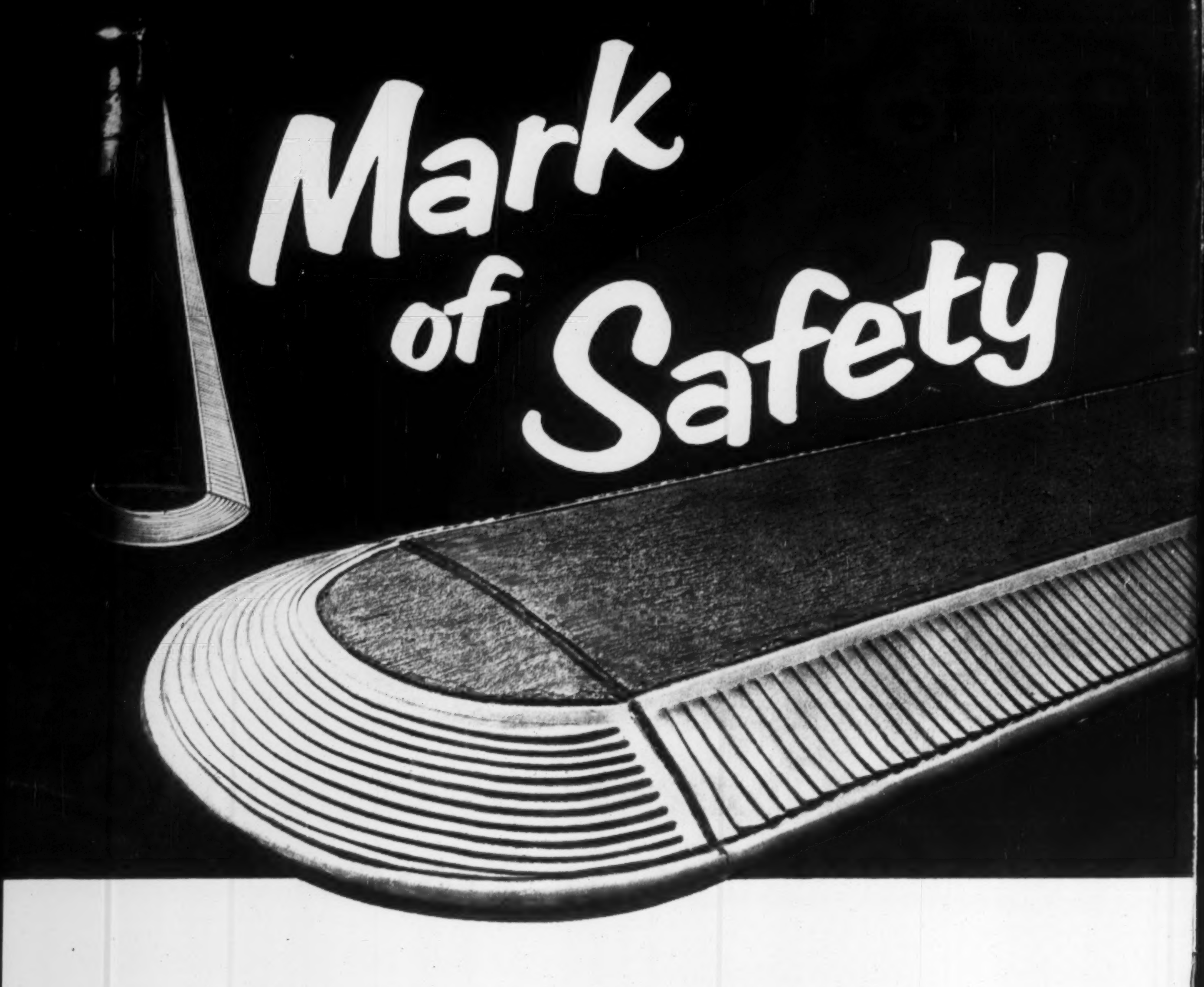

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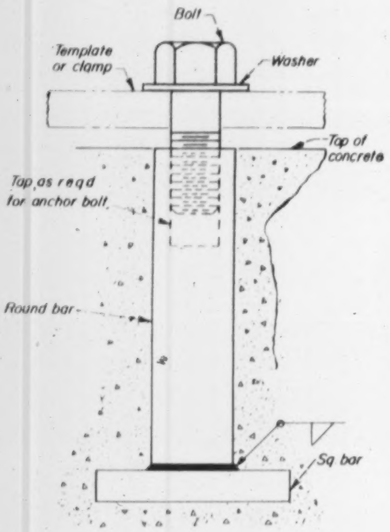
Reader Comment

More on Anchor Bolts

SIR—Offered here is a solution to Mr. H. K. Lee's questions on "Anchor Bolts Are Problems" (ENR May 30, p. 10 and Aug. 15, p. 8).

Inserts of the type shown below can be used in lieu of conventional anchor bolts where a smooth surface is required for moving equipment on and off of a concrete base, during mounting or removing, or where the bolted-down installation is of a temporary nature.



They can be used for future installations, when some time may elapse before mounting equipment, to avoid use of conventional anchor bolts with their susceptibility to damage and possible inconvenient projection and, also, where clamps are used in anchoring, to free equipment bases from the necessity of requiring mounting holes and where location of inserts need not be held to exact base dimensions of equipment.

These inserts are easily and accurately placed in position when finishing concrete surfaces, by the use of wooden frame templates through which holes are bored to accommodate the insert bolts. After the inserts are placed and the concrete has set sufficiently so that the wooden insert templates may be removed, plugs may be installed in the top ends of the inserts to protect the threaded portions and to provide a perfectly flat surface.

The inserts can develop the full tensile or shear strength of the bolts used, as the depth of embedment, insert body diameter, tap depth, base dimensions and well size may be specified for any strength requirement. When used with clamps, they allow flexibility in positioning and ease of adjustment during equipment mounting and they eliminate fixed-projection, mount flush with concrete surfaces, are simple to install, dependable, strong and economical.

I feel that the conventional type of hooked anchor bolt has both utility and economy for general use. The inserts described are intended for use in the special cases mentioned, and for the resistance of large loads of 11,000 lb and up per bolt. For lighter loads, commercial equivalents of the insert are available, such as expansion anchors and gun-driven bolts which are placed in the set concrete surfaces either before or after equipment installation.

R. C. ADLER
Commonwealth Associates, Inc.
Jackson, Mich.

Do It Yourself

SIR—Your editorial on "Do It Yourself" in the August 15 issue raises the question of why many are taking up repairs and amateur maintenance. Could it not be that people are just plain fed up with exorbitant prices the so-called professionals require for their services and also the very bad service they give when they do get around to doing any amount of repairing or building for you?

I think a man would much rather reluctantly muddle through a job himself; and if trying to make ends meet is a crime then I am afraid a lot of little guys are breaking the law.

TOM L. LITTLE
Pittsburgh, Pa.

EDITOR'S NOTE: Mr. Little comes to the same conclusion as the editorial: Do It Yourself is largely a result of the high cost of having someone else do it.

Greetings Upon Retirement

SIR—With 47 years of married life in engineering bringing us shortly to the day of retirement, I send a greeting to all engineers, who make our lives so fine by their daily work and our home lives so much finer by their bigness. For engineering is a man's world—never small, petty or idle; never standing still nor reneging.

"Engineers are men who think big," said my father (himself an engineer). I'm proud that I married one—proud, too, of his career (with the Mobile District of the Corps of Engineers since 1942 and before that with the St. Louis Street & Sewer Dept.).

I myself have been a constant reader of "The Record" since 1899, when my father let me be his personal "office boy" at $1.00 per month.

I laugh, when I think back, to the first financial dilemma that came to me as a bride, the first week of November, 1910, when a large box of my new husband's three-year accumulation of ENGINEERING RECORDS arrived at our door from Milwaukee, marked C.O.D., without warning. At a $60.00 monthly salary—not yet due for 10 days—the "pig's ear" was pretty flat. But that fact is a revelation now when I think of what happened, for even though we lived 44 blocks from the express office, the expressman said, "I'll stop on my next trip this way for the change."

Those were the days when all men thought big.

For all the many, many memories fine, I thank you. . . . Sincerely.

MRS. GEORGE C. GUNDLACH
Pass Christian, Miss.

●

SIR—Although retiring now, I have just renewed my subscription to ENGINEERING NEWS-RECORD. If my record is correct, this will extend my present subscription to March, 1960.

My original subscription to ENGINEERING NEWS was placed with a Mr. Wonder in 1910. . . . When my present subscription expires I will have been a reader of ENGINEERING NEWS and ENGINEERING NEWS-RECORD for a period of 50 years.

I heartily recommend the ENGINEERING NEWS-RECORD as the engineering magazine for young or old.

LOUIS H. WISMAR
Columbus, Ohio

Create Prestressing Code

SIR—In the article "Report Blames Design for Roof Failure" (ENR July 11 p. 28) the described failure will be judged by the majority as an extremely bad individual design, without any ill feeling toward prestressed concrete. To eliminate any future failures of this nature a code of practice or design specifications for prestressed concrete should be adopted in this country as soon as possible. This would certainly eliminate

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

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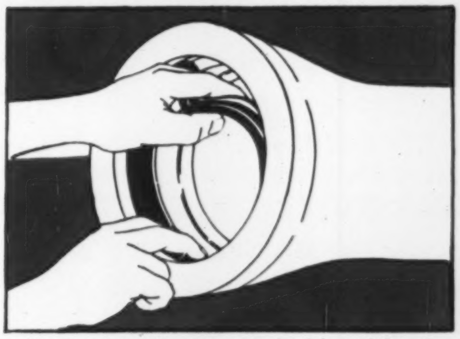
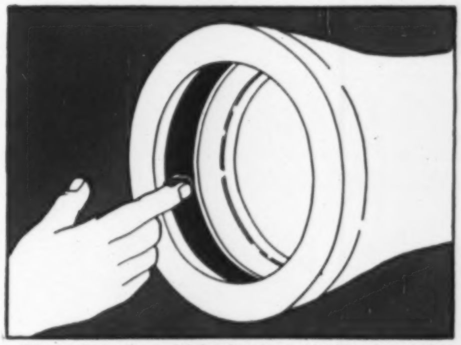
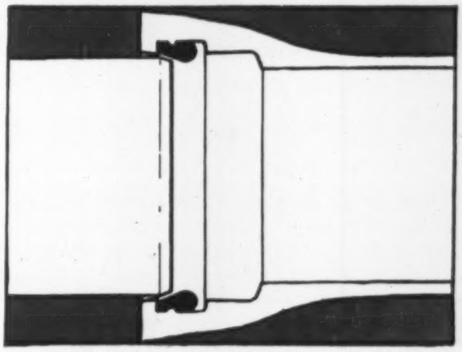


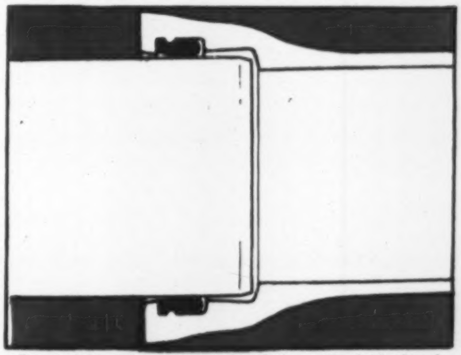
Insert gasket with groove over bead in gasket seat



Wipe a film of special lubricant over inside of gasket



Insert plain end of pipe until it contacts gasket



Force plain end to bottom of socket ... the job's done!

unsafe designs like the one described in your article.

I might mention that paper tube sheathing and strand deflecting (harping) devices are frequently used in California and are completely reliable provided all fiber stresses are kept within the allowable values and any tension in excess of 0.05f′c is taken by mild steel.

Steven Galezewski
Project Engineer
Rockwin Prestressed Concrete Corp.
Whittier, Calif.

Metric System Ignored?

Sir—There is little doubt that the lack of a uniform system of engineering notation seriously hampers communication among engineers.

This was illustrated at the World Conference on Prestressed Concrete held in San Francisco recently. Reports were given using either the British or the metric system. Had one engineering notation system predominated there would have been a greater cohesiveness in the reports.

The metric system, which has been adopted as the legal one in the United States, has certain advantages over the British system. Yet in the practical everyday approach to engineering problems in the U. S., the metric system has been all but ignored. This obviously should not be the case, hence, it behooves me to raise the question why engineers in this country haven't made a more sustained effort to incorporate the metric system in their work.

Maximil Grietens,
San Francisco, Calif.

Editor's Note—Mr. Grietens seems to be backing the comments made in the editorial, "Metric Equivalents" (ENR Aug. 8, p. 128).

•

Sir—Why not adopt the metric system to the exclusion of all others? (ENR Aug. 8, p. 128).

CALENDAR

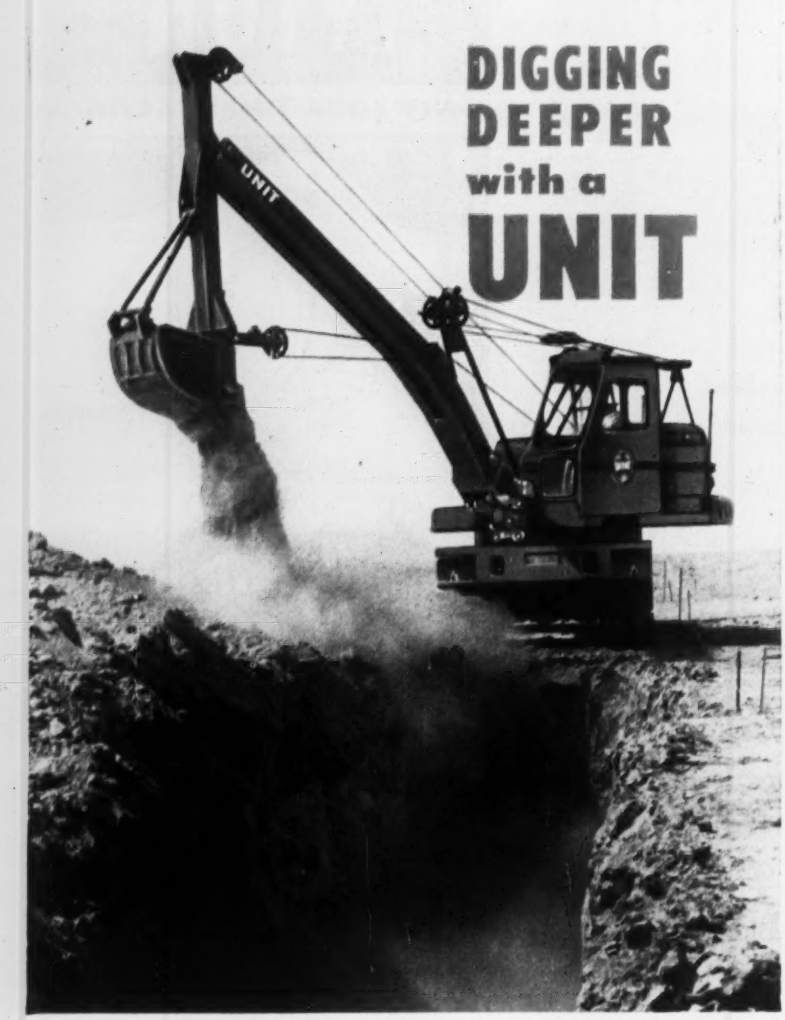
Public Works Congress and Equipment Show. American Public Works Association, Grand Exhibition Hall, Philadelphia, Pa., Sept. 22-25.

Southeastern Association of State Highway Officials, 16th Annual Meeting, Atlanta, Ga., Oct. 1-3.

Federation of Sewage & Industrial Wastes Associations, Hotel Statler, Boston, Mass., Oct. 7-10.

American Institute of Steel Construction, thirty-fifth annual meeting, Hotel del Coronado, Coronado, Calif., Oct. 7-10.

Society for Experimental Stress Analysis, annual meeting, Hotel El Cortez, San Diego, Calif., Oct. 9-11.



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Keep the job GOING

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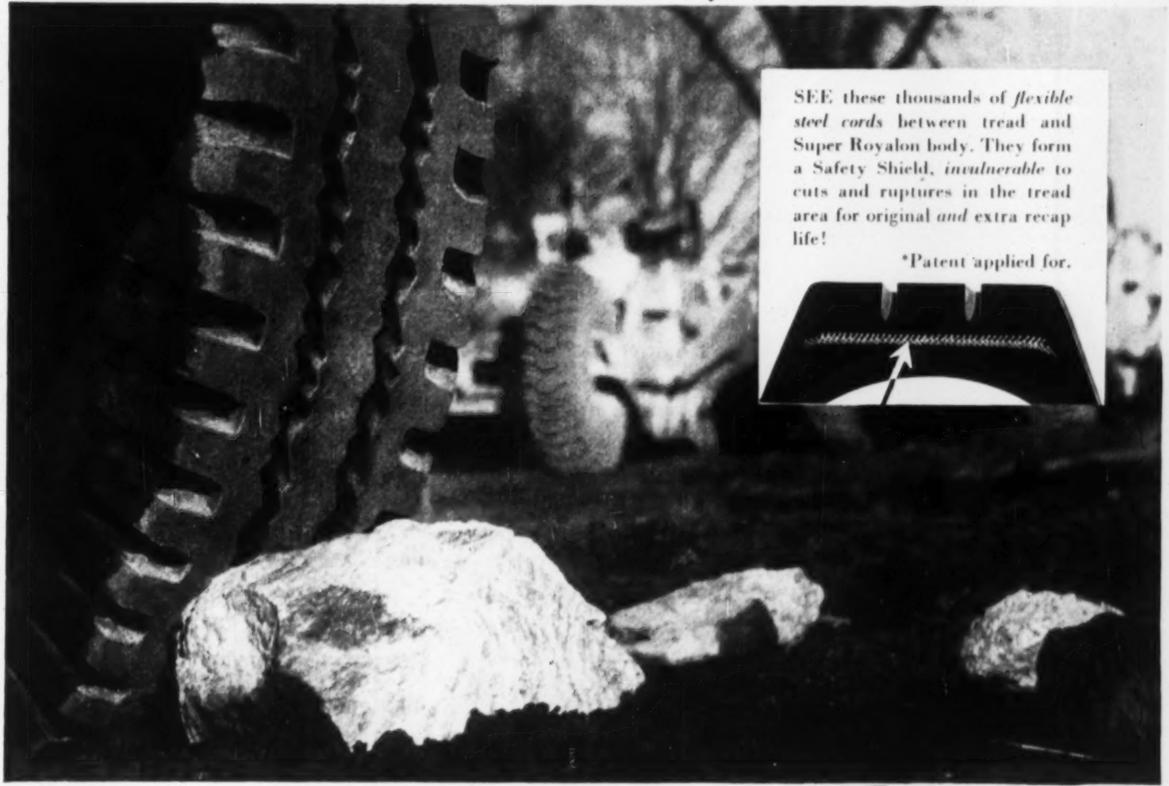

SEE these thousands of *flexible steel cords* between tread and Super Royalon body. They form a Safety Shield, *invulnerable* to cuts and ruptures in the tread area for original *and* extra recap life!

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For graders, scrapers, heavy off-the-road equipment—

U.S.ROYAL CON-TRAK-TOR FULL LUG

- **Triple Impact Protection**—added rubber between plies, double shock-pads, extra-tough construction at the crown.
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Don't let tire failure hold up your job. Put your trucks on the new U. S. Royal Super Fleetmaster. Its Safety Steel Shield is so immune to hazards that it runs over jagged rocks, even over razor-sharp axblades without losing a pound of air!

This tire's *all-new*—with money-saving advances throughout its construction. It's *all-wheel*—built for every on-and-off-the-road truck exposed to heavy impacts in murderous terrain.

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United States Rubber

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In Canada: Dominion Rubber Co., Ltd.
See things you never saw before. Visit U. S. Rubber's new Exhibit Hall, Rockefeller Center, N. Y.

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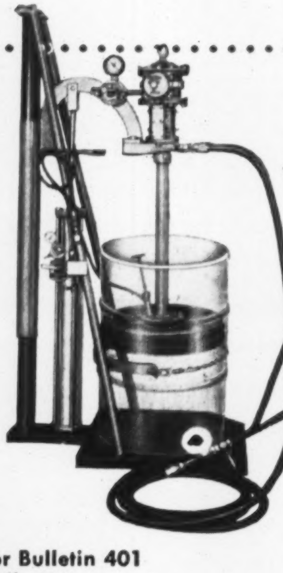

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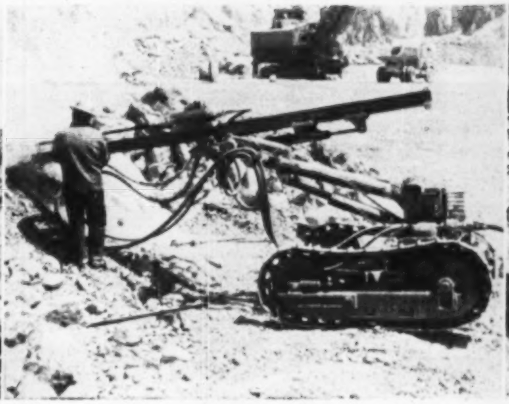
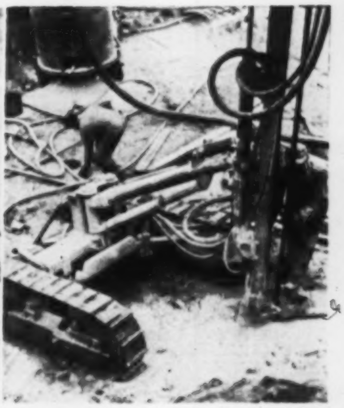
There is no fussing with time consuming hoists and wire rope to spot this drill.



The big savings are in speed of set-ups and maneuverability. Set-up time is not production time.



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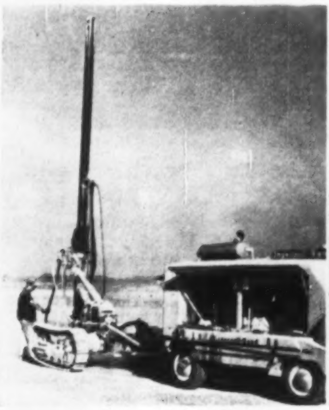
the NEW Ingersoll-Rand CRAWL-IR

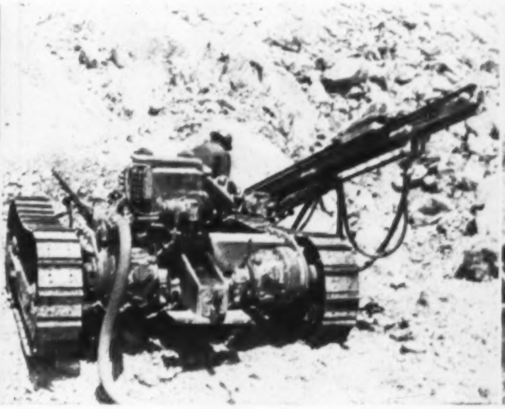
MOST FULLY MECHANIZED CRAWLER DRILL EVER DEVELOPED

No other crawler drill is so fully powered — so fast and easy to setup — so safe and convenient to use. It will drill horizontally, vertically, or at any angle, with all boom and tower motions controlled hydraulically at the touch of a throttle.

The CRAWL-IR tows its own air power up slopes or over rough terrain. Heavy duty air motors propel the rugged knee-action crawlers. Call your I-R man or write for bulletin 4189.



The CRAWL-IR is not dependent on other equipment and men to move its air power—it tows its own.



Here is a graphic example of complete flexibility—toe holes out over the side of the crawler.

Sound design, convenience of controls and rugged construction give you all you could ask for in a crawler drill.

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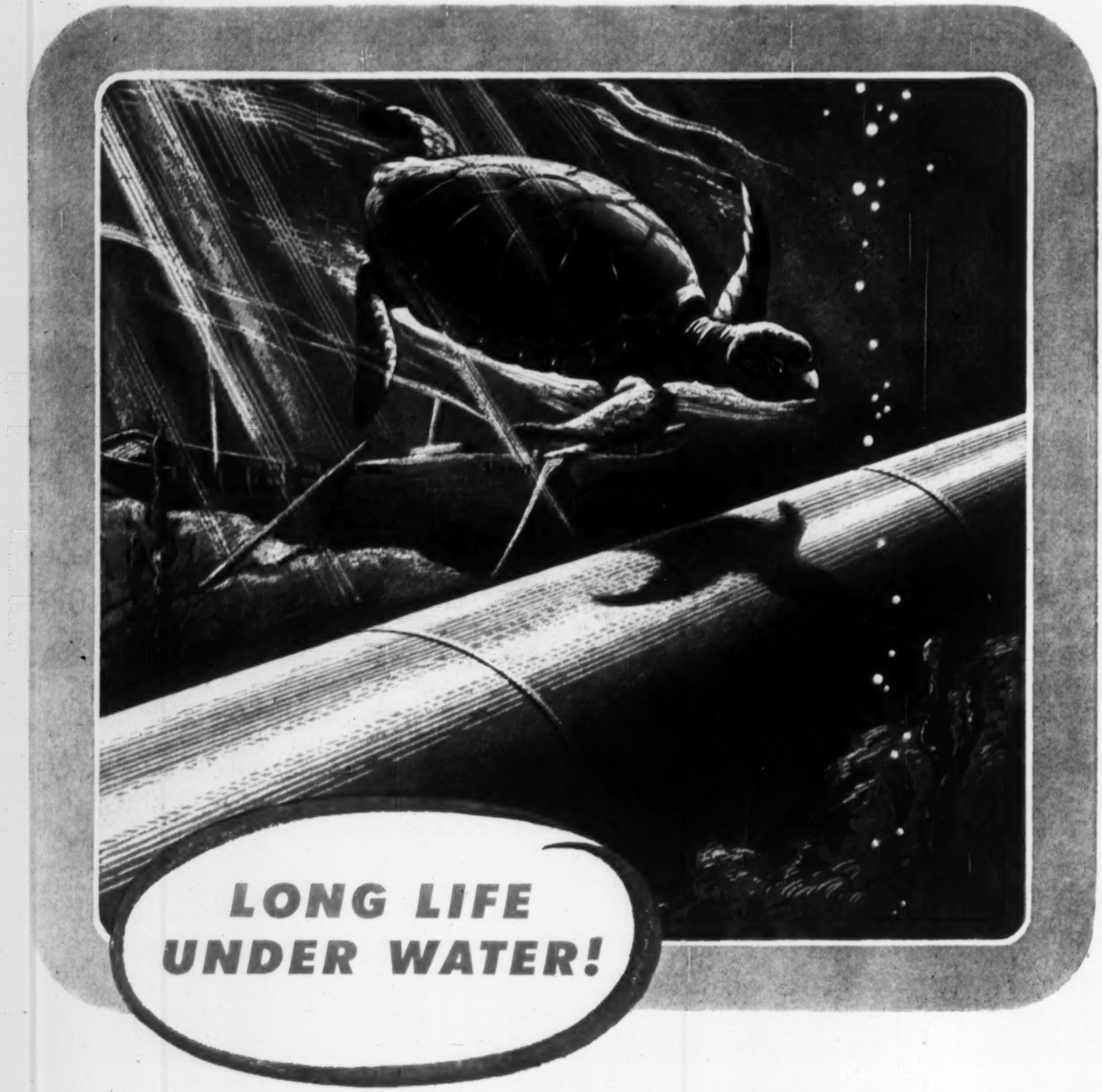
FOR A PACE-SETTING DRILLING COMBINATION, POWER THE CRAWL-IR WITH A GYRO-FLO COMPRESSOR.



The giant marine turtle, or "leatherback", is reputed to live for 250 years. This tremendous life span is, in part, attributable to its tough, durable shell—a natural protection against the rigors and constant buffeting of underwater life.

LOCK JOINT REINFORCED CONCRETE SUBAQUEOUS PIPE owes much of its unusual underwater longevity to its "shell"—the dense concrete wall which makes it practically ageless. To assure the strongest possible concrete, periodic compressive tests are taken of each day's run of concrete in every Lock Joint plant. This is only one of the many quality control measures marking every phase of the manufacture of Lock Joint Pipe.

Can you guess how many cubic yards of this high quality concrete were required in the production of the 18,000 ft., 120 inch diameter Lock Joint Reinforced Concrete Subaqueous Pipeline for the intake of Cleveland's water supply system? The answer can be found in the picture above.

LOCK JOINT PIPE CO.
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Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo.
Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

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THE CONSTRUCTION WEEK

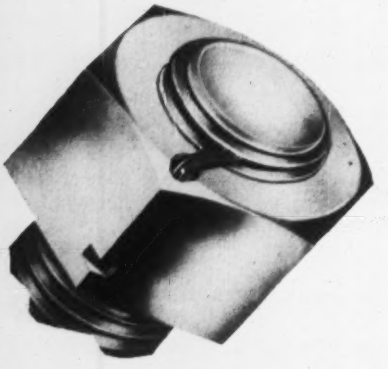
RECOMMENDED READING—Robert Moses was in rare form last week when he spoke on radio to the citizens of the Niagara Falls area, exhorting them to withdraw objections to the water carrying scheme for the Niagara Power project. He wants the Federal Power Commission to cancel scheduled hearings that threaten to delay start of construction. What the chairman of the Power Authority of the State of New York said was more or less expected, but how he put his case before the people is well worth study by engineers who must sell the public on projects. PASNY, at 10 Columbus Circle, New York, has printed copies of the radio talk.

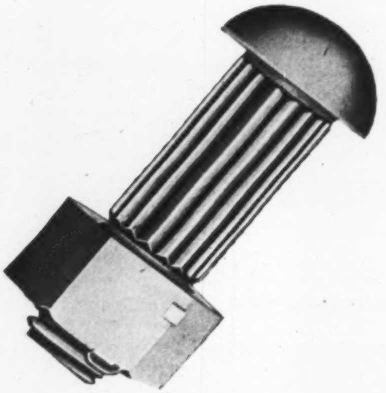
OFFICIAL ESTIMATE OF SEISMIC DAMAGE—President Adolfo Ruiz Cortines of Mexico has just released the first official figures of property damage caused by the July 28 earthquake (ENR Aug. 15, p 38). Official figures say that property damage in Mexico City amounted to $25.6 million and in the State of Guerrero (Acapulco and Chilpancingo) damage amounted to $1.2 million. In all, 975 buildings were damaged in Mexico City, including five which collapsed. Only three buildings still standing will have to be demolished, according to the official statement.

HOPE SPRINGS ETERNAL—President Eisenhower's pocket veto of the bill Congress passed authorizing $210 million more for direct home loans to veterans and one year extension of World War II veterans' loan program does not shut off all chances for prolonging the life of the World War II program to July 25, 1959, instead of July 25, 1958. Congress will take up the extension again when it comes back in January. Members generally favor the idea of giving World War II GI's another year to take advantage of VA-guaranteed loans in a less stringent money market than has prevailed this year. The Administration will likely go along with the plan if Congress will allow a more realistic interest rate of 5% instead of 4½% for the VA mortgages.

BUILDING BOOM LACKS DYNAMITE—Hawaii's construction industry has been threatened by a new Coast Guard regulation limiting the amount of dynamite that can be brought into Honolulu Harbor on any single ship. Maximum quantity is 50 lb. The problem may be solved by manufacturing the material on the island. Hawaiian Rock and Supply Co., Honolulu Construction and Draying Co. and Gray, Cheeley and Graham, distributors for Hercules Powder Co., will build a $140,000 plant on a 22 acre site. It will be the world's first "pushbutton-operated" dynamite plant, with the chemicals to be mixed by remote control from a switchboard. The plant will produce one ton daily, enough to supply island needs.

STRUCTURAL RIB BOLTS and ANCO NUTS for Speed — Strength and Savings





This self-locking nut, easily applied with an ordinary wrench, will stay locked under severest vibration and shock.

The patented wire stop (illustrated) enables the Anco Nut to be used on ordinary machine bolts, high strength bolts or structural rib-bolts.

The positive locking action of this nut eliminates the necessity of mutilating bolt threads, or squeezing the nut itself. The nut, therefore, can be used for temporary or permanent connections.

Vibration does not affect the holding power of this nut, which yet can be removed with a hand wrench as easily as it is put on.

Anco lock nuts can be furnished in steel, black, Cadmium, aluminum, brass, bronze, or stainless steel in a full range of sizes from 1/4" up, in either Coarse or Fine threads to fit standard bolts.

Anco locknuts are available hot-dipped galvanized.

Millions of these nuts are now in use on radio, TV and micro-wave towers, on transmission lines and equipment, and construction equipment that is subject to shock and vibration.

Structural rib bolts with national coarse threads and Anco self-locking nuts are stronger than hot-driven rivets. The ribbed section grips the steel plates and forms a body-bound connection. No other fastener can do this.

One or two men can install this fastener. Driven and wrenched tight, no washers are necessary and no air or heat is required on the job. Structural rib bolts and Anco self-locking nuts are less expensive than any other comparable type of fastener.

Galvanized Structural Rib Bolts and galvanized Anco self-locking nuts are approved for all types of towers. They are currently in use on the highest tower in the world, nearly 2000 ft. tall. They are used in the Continental Air Defense Command Warning System radar and micro-wave towers in Canada.

Approved by:

The American Institute of Steel Construction
U. S. Navy Bureau of Yards & Docks
U. S. Air Force Corps of Engineers
Various State & Municipal Codes

WRITE FOR ENGINEERING DATA AND SAMPLES

AUTOMATIC NUT COMPANY, INC.
LEBANON - - - PENNSYLVANIA

Canadian Representative:
W. R. Watkins Co., 41 Kipling Avenue, South, Toronto, Ontario

WASHINGTON OBSERVER

- Rumors flow on budget hold down
- Urban Renewal react to complaints
- Attempts to oust Cole boomerang

● **Rumors of a new White House attack on construction spending keep cropping up among officials around the country.** The rumors are that the Budget Bureau, in approving routine quarter-by-quarter spending requests submitted by each agency, is trimming so that actual funds spent by year's end will be less than Congress appropriated for the year beginning July 1.

Officials of both the Budget Bureau and the agencies deny the rumors. But agency administrators admit they've been especially watchful this year to see whether some such corner-cutting would be tried. Actually, several agencies already have been given the green light to commit all the funds Congress gave them for the entire year.

Reclamation officials have heard the rumors but say their spending program hasn't been changed. The Rural Electrification Administration is free to approve loans to coops for the entire sum appropriated for the year. Federal aid payments to airport construction are in the clear.

Rivers and harbors and flood control spending plans of the Army Engineers are being processed by the Budget Bureau now. But engineer sources say they don't expect a holdback.

Military officials already have been told to go ahead on $700 million of spending authority for military public works carried over from last year. They will ask Budget Bureau for the full lump-sum for construction about mid-October.

—

● **Urban Renewal officials blame the Bureau of the Budget for putting them under quarterly allotments for the first time.** They'll be able to commit $100 million during the first quarter of fiscal 1958, $50 million in each of the three other quarters.

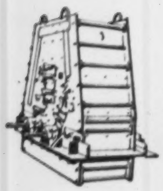
The Urban Renewal Agency has reacted to complaints from city officials about federal instructions earlier this year that apparently would give Washington more say than Congress intended over decisions on redevelopment projects. The new system of priorities to determine which cities get their money first meets the approval of mayors and other city officials.

—

● **Efforts to push Albert Cole out as housing chief boomeranged.** Over the past couple of years a group of politicos inside and outside the housing agencies have wanted Mr. Cole removed. Much of the pressure came from Republican bigwigs in New York, who wanted a money man in the job.

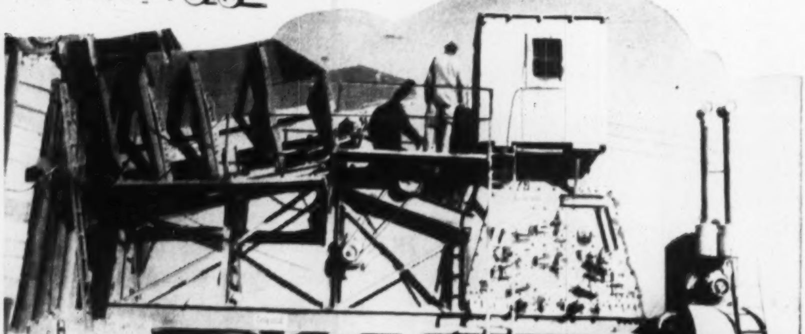
Charles E. Sigety resigned as FHA deputy commissioner for his attempts to promote his boss, FHA chief Norman Mason, into Cole's job. (Insiders say Mr. Mason is right when he says he knew nothing of the scheme.)

Mr. Cole is more solid in his job now than ever before. He nailed down his position when he won the White House over to his view that housing should get the benefit of easier terms legislated by Congress.

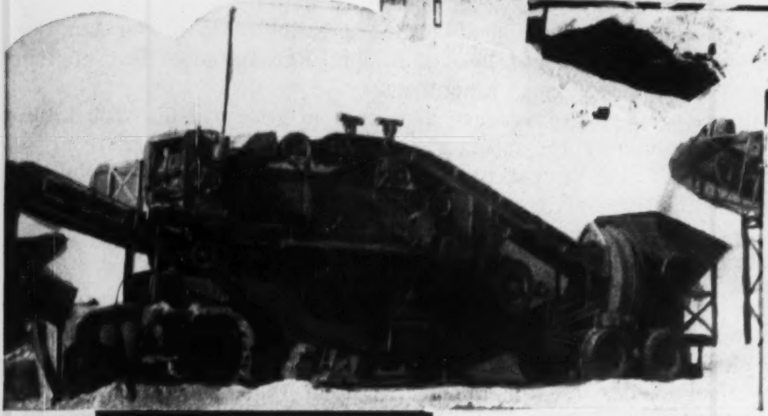


Cedarapids Skid-Mounted Primary Portable Secondary Combination . . .

PRODUCES BIG VOLUMES OF STRICT-SPECIFICATION AGGREGATE



Cedarapids "Packaged" skid-mounted stationary 3645 Double Impeller Impact Breaker produces a high percent of required smaller sizes in the primary reduction operation. Cedarapids 36″ x 14′ Feeder feeds quarry rock onto a single deck 40″ x 6′ Vibrating Grizzly to by-pass fines around the Impact Breaker.



Material from the Double Impeller is conveyed to a surge pile and is then fed into this Cedarapids Portable 4033 Hammermill Secondary Plant. Oversize from the top screen deck goes through the hammermill for secondary reduction, while material passing the ¾″ bottom screen deck is delivered directly to the Cedarapids screen-bin unit.

MAXIMUM PRODUCTION OF SPECIFIED SIZES

¾″ to ⅜″ MATERIAL

Size	Minimum	Maximum
1″	100	
¾″	95	100
½″	50	90
⅜″	10	40
No. 4	1	10
No. 8	1	6
No. 30	1	6
No. 50	1	6
No. 100	1	5
No. 200	1	4

LIMITS—⅜″ Chip Material

Size	Minimum	Maximum
⅜″	100	
No. 4	60	80
No. 8	40	55
No. 30	17	28
No. 50	17	25
No. 100	15	22
No. 200	11	17

The combination of a Cedarapids 3645 Double Impeller Impact Breaker and a Cedarapids Portable Hammermill Secondary used by Beu & Sons Co. of LaPorte City, Iowa, is producing 70% of ⅜″ minus and 30% of ¾″ material at an average 220 ton per hour production rate . . . and as high as 5800 tons of 1¼″ in 18 hours . . . with a high crushing percentage. Look at the screen-analysis table on this plant's production. This type of operation proves the versatility and productivity of Cedarapids equipment for turning out strict-specification aggregate in the tonnages demanded.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.

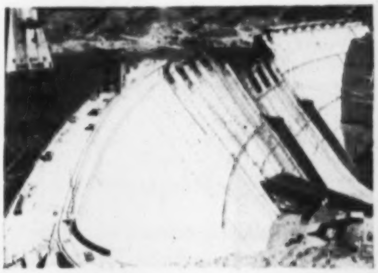
SEPTEMBER 12, 1957

ENGINEERING NEWS-RECORD

ENR Forecasts '58 Contract Awards, Sees . . .

Highways, up 9% . . .

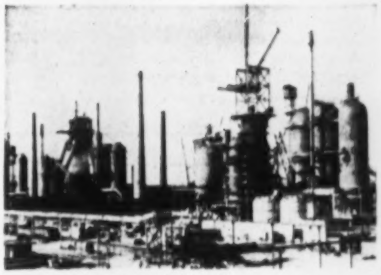
Public buildings, up 7% . . .



Dams-irrigation, down 26% . . .

Bridges, no change . . .

Private housing, up 6% . . .



Industrial building, down 9% . . .

1958 Volume Will Hit Close to 1957

This year's sharp decline in dollar volume of contract awards will not be repeated next year—according to a preliminary forecast by ENR.

However, a very slight decline should be expected.

This year's total—an estimate based on the first eight months—should run to $19.35 billion. The 1958 total probably will be close to $19.25 billion.

Contracts for construction other than buildings are expected to be slightly above 1957, increasing from $7.9 billion to $7.95 billion next year. A decline in federal contracts will be offset by non-federal public works increases.

New records are predicted next year in waterworks, up 9%; sewerage, up 12%; and highways, up 9%. Bridge contracts should hold steady at 1957's total volume of $725 million.

Private unclassified construction contracts also are expected to score an increase next year. So far this year, contracts for unclassified construction have failed to equal the advance notices of proposed work, thus many projects that have accumulated in the planning stage should go to contract in 1958. Also expected to bolster 1958's unclassified awards category is the $330 million natural gas line from California to Washington to Alberta, Canada, proposed in August by Pacific Gas & Electric Co.

• Economy drive damage—By contrast, contracts for federal dams and military construction will drop next year. The Congressional economy drive and the Administration's announced intentions to limit new project starts will cut into next year's contract volume. In addition, 1958 will lack the big federal projects let this year such as the $108 million Glen Canyon Dam contract.

However, some of the slack resulting from the cutback in federal project awards will be taken up by the Power Authority of the State of New York and its Niagara River power project, which has a construction cost of $450 million. However, a good part of this job might even be awarded before the end of 1957.

Although contracts for dams, earthwork, river and harbor development will not measure up to 1957's estimated record of $1.08 billion, the 1958 forecast of $825 million will be the second highest year for these types of work.

Contracts for heavy building construction are expected to total $11.3 billion in 1958 as compared with the revised estimate of $11.45 billion for this year.

Increases of 7% in public nonresidential building and 6% in private mass housing are predicted. But offsetting these two increases are expected declines of 9% in industrial building, 5% in commercial building, and 15% in public housing.

The public housing drop will result from a lower volume of military "Capehart" housing contracts expected during 1958. The reason for the military housing decline can be traced to the unusually concentrated contract lettings during the current year's first half. The 1958 forecast therefore reflects a more "normal" award pace of the program than occurred in the second half of this year.

• The biggest market—Next year's biggest heavy construction market will be in the public group, primarily state and local governments. ENR's findings indicate industry will have an easier time obtaining long term financing in

Heavy Construction Contracts Forecast—1958

Reported by Engineering News-Record and Construction Daily, in millions of dollars

	Actual 1956	Estimate Based on 8 Months 1957	% Change '56–'57	Preliminary Forecast 1958	Preliminary Forecast % Change '57–'58
All Heavy Construction	$21,712	$19,350	−10.9	$19,250	− 0.5
By Ownership—					
Private	13,490	9,300	−31.0	9,200	− 1
Public	8,222	10,050	+22.2	10,050	0
State and municipal	6,533	7,550	+15.5	8,050	+ 7
Federal	1,689	2,500	+48.0	2,000	−20
Public—					
Waterworks	356	390	+ 9.6	425	+ 9
Sewerage	579	560	− 3.1	625	+12
Bridges	622*	725	+16.5	725	0
Highways	2,475	3,200	+29.6	3,500	+ 9
Earthwork, dams, irrigation and drainage	730	1,075	+47.2	825	−26
Buildings, excluding housing	2,099	2,250	+ 7.2	2,400	+ 7
Housing	318	650	+104.1	550	−15
Unclassified (airports, military, tunnels)	1,053	1,200	+ 1.4	1,000	−20
Private—					
Industrial building	5,335	3,250	−39.2	2,950	− 9
Commercial building	2,051	2,000	− 2.5	1,900	− 5
Mass housing	5,307	3,300	−37.8	3,500	6
Unclassified (pipelines, hydro-electric, transmission lines)	787	750	− 4.7	850	+13

*** Includes $10.4 million private bridges**

1958 than in 1957, as there will be an easing in industry's demand for investors' capital.

Corporate security sales for construction funds already have dropped below the pace of last year. In both July and August sales were below last year, although the cumulative total still topped last year because of prior heavy volume.

State and municipal borrowers will therefore be the chief beneficiaries of industry's lessened demand for capital funds. By offering the highest interest rates in 25 to 30 years on their new issues, the state and local governments will be in a position next year to harvest a larger share of the investor's dollar. The higher yields to the investor will probably be necessary to finance the new record volume of state and municipal heavy construction forecast for 1958, which is expected to top the current year by 7% with a total of $8.1 billion.

Even though federal-aid funds will contribute to the 1957-1958 increase, more borrowing will be necessary in 1958 than in 1957 to sustain the projected heavy construction increase.

• Public works proposals—The 1958 contract award forecast is based largely on the trend of new proposed work as compared with the flow of projects out of the planning stage to construction contract.

State and municipal proposed work this year scored a 6% increase over 1956 during the first eight months. The current total of $7 billion was only slightly shy of matching 1955's all time high in estimated cost of projects proposed during the January-August period.

In addition, there is increasing bulge between the volume of this work and the value of projects moving out of ENR's backlog of heavy construction in planning into construction contract. The bulge indicates a continuing rise in state and municipal construction during the next 18 months at least.

By contrast, less private work has been proposed so far this year than in 1956. The proposed work total of $6.4 billion for the first eight months is down 28% from last year's record volume and is also below the 1955 total for the same period.

The drop was even sharper than the decline in contracts during the first seven months. And, although proposed private work soared in August, the low level tallied in the months preceding August will act as a drag on 1958 contracts.

Two Killed Testing New Sewage Pumping Plant

Two men were fatally overcome by a gas of unknown origin as they were testing equipment in the deep well of a sewage pumping plant under construction in Evansville, Ind., Sept. 4. Also overcome by gas were eleven persons aiding in rescue work, all of whom subsequently recovered.

The dead are Wayne Kiester, 35, resident engineer for Consoer, Townsend & Associates, Chicago, and Luis Duncan, superintendent of sewers for Evansville.

The Third Garage

Spokane spawns a trio of mechanical parking units

Spokane, Wash., appears scheduled to take its place as the city most likely to develop a new mechanical parking facility.

With the completion of engineering on a new elevator parking unit developed by Systematic Parking Co., the city becomes the birthplace of the third such device.

The other two units developed there are Pigeon Hole Parking, Inc., Parkmaster Systems, Inc. The former has been marketing its product for several years in the U.S., Canada and South America. The second organization completed its elevator unit in the early part of this year.

A prototype model of the newest entry to the field has been constructed by Systematic Parking at York, Pa.

According to Don Sanders, president of the company, the facility can be constructed as high as 20 stories. Systematic has correlated its platform specifications for use with Otis elevators.

Heart of the unit is the transfer device, which utilizes retractable forks that swing out to catch a car's front tires and a lifting platform that engages the differential at the rear.

• The difference—This system differs from others which make use of a flat carriage that picks up the car by its underframe and slides it into a slot.

According to Mr. Sanders, the unit will accommodate two loading devices on a large elevator platform. An operator on the elevator controls the elevator and the loading units. When at the proper floor, the loading device will move the car into or out of the selected stall.

The system does not require independent tower support, the manufacturer said, and the units can be placed in tandem.

• Push-button controls—The control panel includes push-button floor selection with automatic leveling while separate controls on the panel guide carriage movement and dolly extension.

Equalizing cables and vertical guide rails maintain horizontal stability and buffer deceleration type safeties prevent an uncontrolled drop of the elevator.

Pigeon Hole utilizes a one-car elevator that moves horizontally and a shuttle that can load or unload from front or back.

Parkmaster uses a two-car elevator with a turntable platform that can be used to load or unload in any direction. Its loading device can be extended to load cars in two depths in the stalls.

Engineers Talk Water Sense to Lawyers

Practical water men point out naivetes in model water law proposed by Michigan Law School team

At a conference last week on water law at the University of Michigan in Ann Arbor the lawyer-drafters of a "Model Water Use Act" presented it to a seasoned group of top level practicing water experts in hopes of receiving their approval with perhaps slight modification. What developed was a barrage of criticism to the effect that the law moved too far from the riparian doctrine of the East: It would set up a licensing system and consequently water czars with absolute powers; it made little mention of navigation, conservation and wildlife uses of water.

The upshot was that the lawyers will attempt to move out of their ivory towers during the next year or so and present a rewritten version to a similar engineer-lawyer conference in 1958.

• **No easy solution**—For the nation, the conference, sponsored by the University of Michigan Law School, indicated that there still is a long road to travel before existing riparian water laws (ENR May 9, p. 23) can be modified satisfactorily to correct some of their shortcomings. There was also the view by two eminent hydrologists that despite the Easterners' devastating rejoinders to the proposed model act and their constant stress of individual rights under riparian laws, they will eventually view these rights as a caprice of history.

These two dissenters from the general tone of the conference (though not from criticism of the model law), Arthur M. Piper and Harold E. Thomas of the U.S. Geological Survey said, "The riparian doctrine, with its concept of absolute property rights in water, will become obsolete. One principle of the appropriate doctrine—that ownership of all water supplies rests in the 'public' collectively—will become widely accepted. Other principles of the [appropriate] doctrine will be modified . . . the dogma of first in time is the first in right will be softened to something less than an absolute priority."

Preparation of the model act was financed by the private W. W. Cook Foundation at the behest of the National Conference of Commissioners on Uniform State Laws. It was written by a Michigan law school team headed by Prof. William J. Pierce.

Essentially, the proposal sets up a licensing system for water use, with existing—but not additional—water use by riparians safeguarded. After listening politely at Ann Arbor last week—to the third painstaking draft—many of the 100 conference registrants brought its inherent naivete into sharp focus. Among the highly placed water industry participants were names such as Adams, Boyce, Clark, Cleary, Hedgepeth, Hess, Hoff, Hollis, Klassen, LaDue, McCallum, Merryfield, Poole, Saville and Velz.

• **Criticisms summarized**—The criticisms of the model act were summarized, indirectly, in a final banquet address by Clarence A. Davis, former Under Secretary of the Interior. He pointed out that people often stake their future on the purchase of land for its water. And if they should become subject to a single bureaucracy, they can be helpless to the tune of their ability to hire legal aid.

Mr. Davis questioned the administrative susceptibility of any license system: "How charming the theory of the most beneficial use 'in the public interest' may appear, who is possessed of the wisdom of determining that fact for the long range welfare of our community and our country?"

Emphasizing the all-consuming importance of water (and reflecting the fears of many Eastern water authorities of licensing water use), lawyer Davis said, "I repeat, the control of water means the control of land; it means the control of industry . . . it means the power to replace an existing economy with a new economy, to sound the death knell of settled areas and to raise up new areas, all by the manner in which we administer this resource."

A representative from General Motors was frankly appalled at the idea that his sometimes politically unpopular company would have to seek permits for water when contemplating a new plant.

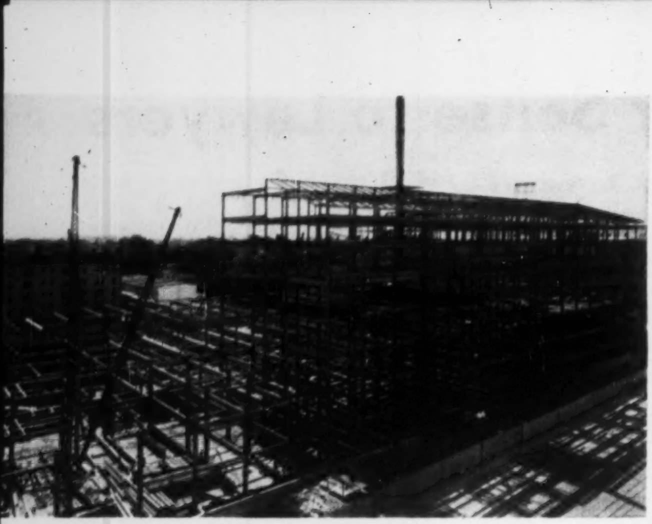
The few seminar participants from the West took the proceedings calmly, making quiet defenses of the water use permit systems so many of the Western states employ. Their calmness could be traced to their belief in the adequacy of appropriative laws; that the great water law debate concerned mainly their Eastern brethren.

• **Another problem**—In his talk, Mr. Davis thought the most fundamental legal problem in the water resources field was the delineation of federal and local authority. He pointed to the pending litigation between Arizona and California, with the federal government a party, over Colorado River waters. This is bringing into focus for the second time, he said, that the federal government is the owner and may do as it pleases with the waters of a stream.

Tainter Gates on Chief Joseph Dam Opened

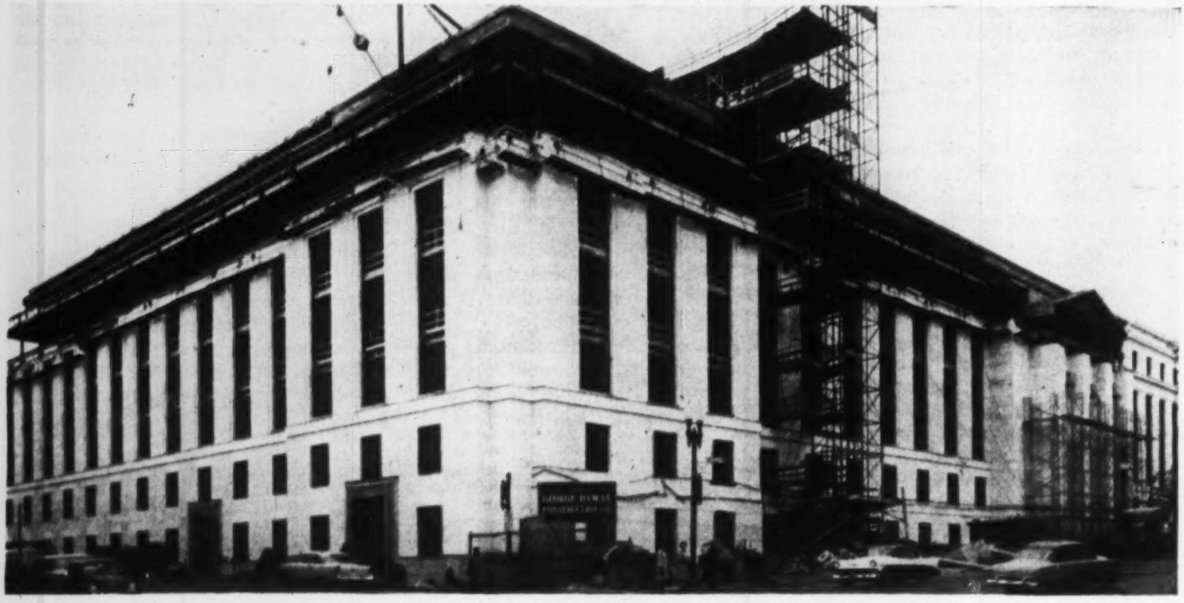
Water cascades down the 922 ft long spillway of Chief Joseph Dam as all its 19 tainter gates are opened. Water is also flowing through 11 of this Columbia River dam's 16 penstocks, each 25 ft in diameter. The 100,000 hp turbines are pushing out as high as 77,000 kw from each of the generators which are rated at 64,000 kw capacity.

A twelfth generator will start producing by Nov. 15, and four more units will be added next year, completing the initial installation for the structure built by the Corps of Engineers. Space is also provided for 11 more units in the future.



With structural steel erected . . .

And floors concreted . . .



New Senate Office Building Nears Completion

Finishing operations are under way for the Additional Office Building for the U. S. Senate, to get the much-needed facilities ready for spring use. This addition to Capitol Hill is under construction directly east of the present Senate Office Building.

The new building will conform to the older one in height and style and will be connected to it by two pedestrian tunnels. A subway will provide transportation to the Capitol.

The addition is seven stories high, U-shaped in plan. It has a structural steel frame. For the floors, concrete was cast in place on concrete filler blocks. The exterior is faced with white marble on street sides and limestone in the courts.

Offices for senators will be placed around the perimeter of the building. Committee rooms will face on the court. Under the court will be parking space for about 200 cars.

The new building, which will be air conditioned, will house twelve of the Senate's standing committees. Eleven will be provided with a two-story wood-paneled hearing room having a rostrum and anteroom and with four adjacent offices. The twelfth, the Appropriations Committee, accommodated on the first floor, will have a main hearing room, three subcommittee hearing rooms, two witness waiting rooms, a conference room and eight connecting offices.

The building will also contain 40 senatorial offices suites, each with five connecting offices. The Vice President is assigned a four-room corner suite. There will also be an auditorium capable of seating 500. And a centrally located kitchen and bakery will serve the two dining areas of the Senate Cafeteria, which will seat about 800.

Construction of this building signals the beginning of the end for the famous Senate subway, which has been operating its shuttle system of parallel monorails since 1912. Two sections of an entirely new double-track underground system of conventional type (each track consisting of two rails on ties under a paved floor surface) will begin operating next year when the building goes into service.

Subway traffic at peak rush hours, such as when the roll-call bell is sounded for a vote on the Senate floor, made it inadvisable to build either a loop system or a single two-way system, with stops in both Senate office buildings. Instead, the separate two-track lines from the two buildings will converge in a four-track terminal in the basement of the Capitol, adjacent to the elevators to the Senate chamber.

• **Construction of the new building**—Completion of the first part of the new building, the south wing—expected early next year—also will initiate a complete transformation of its older counterpart. As soon as the south wing is in full operating condition to receive a dozen senators, occupancy in the existing building will be sufficiently reduced to permit a start on planned conversion of the old structure.

With the removal of committee facilities, senatorial office suites in the old building will be expanded to five rooms for every senator—both in the old building and the new. The new office building will have suites for immediate occupancy by 46 senators, with space available for more potential senators from Alaska and Hawaii. One of the new suites may go unused, however. Sen. Charles E. Potter, disabled war veteran of Michigan, probably will elect to retain his more convenient office in the Capitol itself.

Design and construction of the new building are under the supervision of J. George Stewart, Architect of the Capitol. Plans were prepared by Eggers & Higgins, architects, with Weiskopf & Pickworth as consulting structural engineers and Jaros, Baum & Bolles as consulting mechanical engineers—all of New York City.

Rota Airbase Opens for Business

Commissioning of the first U. S. airfield in Spain—the naval air station at Rota, on Oct. 1—will signal an important step in completion of the $360 million Air Force-Navy program for construction of Spanish bases.

However, Rota's commissioning is very little ahead of three major Air Force bases in the same country. These three, like the Navy airfield, have been in use this year preceding formal opening by the Strategic Air Command.

Also in service since the first months of the year has been the 48-mile petroleum-oil-lubricants (POL) underground pipeline that supplies fuel to all the airfields from Rota on the southwest coast to Zaragoza in the northeast, near the Pyrenees Mountains. With the pipeline and airfields serviceable, the entire air arm of the Spanish bases complex can be said to have military capability for initial operation.

Except for the pipeline, the table below might give a misleading picture of actual usability. Rota, for example is made up of two separate segments—the airfield and the complementary, but distinct, construction of waterfront facilities. The completion record for the $90 million of planned construction at this base is distorted by the fact that waterfront facilities are only about 35% complete, whereas total planned construction of the air station is 60% or better in place.

Similar but smaller distortions apply to completion percentages shown for the SAC bases. These bases have been "usably complete" at all sites, for aircraft landings and takeoffs since early in the year. Work now is being pushed by the Navy's Bureau of Yards and Docks (construction agent for the Air Force) and its contractors to get the basic layout of barracks, officers quarters, family housing, aircraft maintenance facilities and high-speed fueling systems in working order for initial operational capability.

That means ability to man and to service aircraft 24 hours a day and 365 days a year, but not to the full strength planned for the base. Emergency capability has been available at all bases for nearly six months.

Dollars are the only across-the-board measure of construction progress, but they fall far short as a gage of military readiness. Again, as an example, Rota will cost $120 million when all features are complete. Yet the $90 million of planned construction, as of June 30, will complete not only a fully operational air station, but will construct also an entirely new naval harbor protected by a breakwater and rock dikes and equipped with a marginal wharf and a POL pier.

In the same way, obligations are not a direct indicator of contracts awarded, because awards lag a few weeks to a few months behind so-called "obligation" of funds for specific subcontracts in Spain. Dollar expenditures, however, are a pretty accurate measure of construction put in place.

In the five-year construction schedule of the Bureau of Yards and Docks for the Spanish bases complex, the total planned for obligations for fiscal years 1956, 1957 and 1958 runs $174 million, $260 million and $360 million respectively. Programmed expenditures for fiscal 1956 are $77 million; fiscal 1957, $181 million; fiscal 1958, $277 million; fiscal 1959, $360 million.

Back at the beginning of the job, the small amount of $3 million obligated to June 30, 1954, represented entirely architect-engineer services, with no construction under way. A year later, total obligations of $67 million and expenditures of $20 million included subcontracts and payments for work started at a few sites. Much of the time in that first year, however, had been spent in educating Spanish subcontractors and their personnel in U. S. construction techniques and contracting procedures.

Educating the receptive and cooperative Spaniards caused no unlooked-for delay. But Europe's exceptionally severe winter of 1955-56 certainly did, shutting down all jobs for four months from November to April.

For Rota Naval Air Station, bids were taken early in 1955 for the 8,000 ft runway (asphalt-paved except for 1,000 ft ends of portland cement concrete) and the initial increment of parking apron and taxiways. Despite the four-month setback of job-training, winter weather and the difficulties of compacting diverse soil types in the subgrade, the contractors completed this work by October of the following year, permitting U. S. Ambassador John Davis Lodge and a party to land there in a plane on Oct. 4, 1956. The runway has been in limited operation ever since.

All construction on Spanish bases is permanent type. Buildings generally have reinforced-concrete frames. In the south of Spain, as at Rota, the curtain walls are concrete block or hollow tile stuccoed on the outside to correspond with local architecture. In the north, as at Zaragoza, the exterior walls are brick or brick-faced.

Costs are running about 1.2 to 1 in ratio to U. S. costs, higher than hoped for in 1953 (before U. S. contractors had any experience in postwar Spain), but lower than feared in early 1956, when large wage increases were declared for all Spanish labor.

—Spanish Bases Construction Scoreboard—

	Planned Cost as of June 30, '57 *(In Millions)*	Under Contract Sept. 1, '57	Completed Sept. 5, '57
		(Percent of Planned Cost)	
Bases:			
Rota Naval Base	$90	80%	60%
POL Pipeline	50	92	92
Torrejon Air Force Base	65	80	60
Zaragoza AFB	38	90	60
Moron AFB	37	70	50
San Pablo AFB	8	35	31

Major Jobs Ahead

State plans $100 million outlay for new bridges

The Washington State Highway Department has requested construction permits from the District Corps of Engineers for four bridges to cost a total of $100 million. They will span Puget Sound west of Seattle.

Meanwhile, the Washington State Toll Bridge Authority approved the selection of Porter, Urquhart, McCreary & O'Brien, engineering firm of Newark, N. J., to make an economic study of the problem. The study, scheduled for completion by next March, will determine the financial feasibility of the project and the amount of a state subsidy, if any, that may be required.

The four-bridge project involves: a fixed and floating structure from Brace Point, Seattle, to Dolphin Point on Vashon Island; a suspension bridge from Vashon Island to Point Southworth on the Kitsap mainland; a smaller suspension bridge from the Kitsap mainland across Rich Passage to Bainbridge Island, and a fill and bridge across Sinclair Inlet. The latter will provide more direct access to Bremert, the largest community on the Kitsap mainland (ENR July 18 p. 28).

The Brace Point-Vashon Island bridge would be 11,563 ft long, with four navigational channels from 400 to 500 ft wide under steel cantilever truss approaches.

The suspension bridge between Vashon and the Kitsap mainland would provide 1,000 ft of channel between piers for passage of major shipping to Tacoma and other points south. Total length of the suspension bridge would be 5,930 ft.

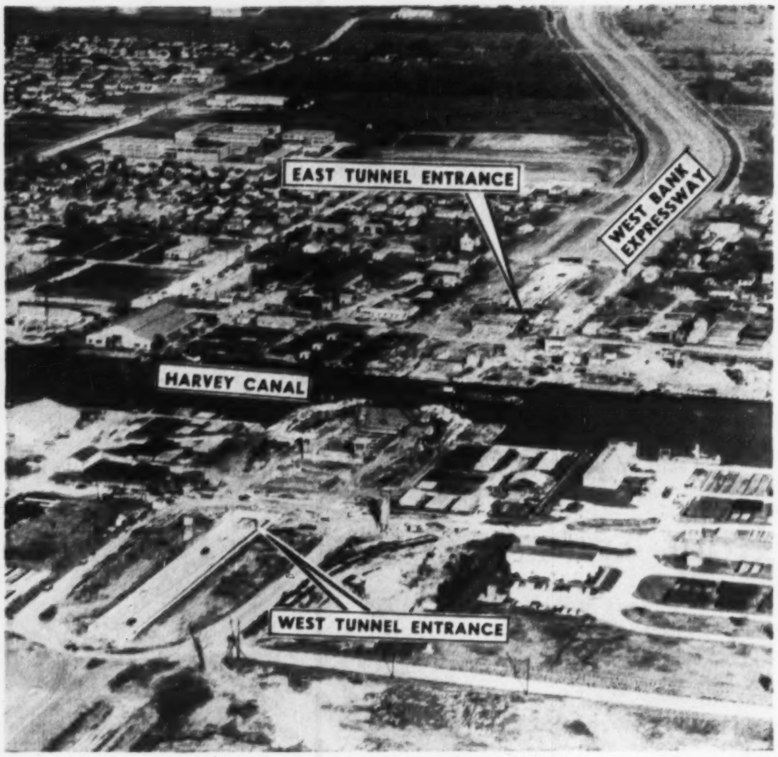
State Laterals Law Upheld in Kentucky

A circuit judge has upheld a 1956 Kentucky state law under which the Louisville Metropolitan Sewer District is permitted to build lateral sewers at the expense of benefited property owners.

The case now will go to the Kentucky Court of Appeals for a final ruling.

The test suit was filed by a group of property owners to be assessed for the laterals, who contend the assessments would subject them to double taxation. They note that formerly the laterals were financed by bond issues which they, along with the other taxpayers, are still paying off.

These bond issues, they also note, are being used to finance laterals built at no cost to abutting property owners.



First Four-Lane, Trench-Type Tunnel Opens

The nation's first four-lane, trench-type vehicular tunnel was put into service last week under New Orleans' Harvey Canal.

Built in three years at a cost of $4.5 million the tube is 65 ft wide, 21 ft high and 1,080 ft long. It provides for two lanes of traffic in each direction, separated by a center wall.

The tunnel section was put in place behind a cofferdam constructed of steel sheetpiles.

The first cofferdam section was built out from the east shore to the center of the canal and the tunnel was begun. When this first half of the tube was complete, the end was sealed; and the cofferdam was removed to be rebuilt from the western shore. The second half of the tunnel was then put under construction.

The tunnel is 2,294 ft long between grade points on the east and west sides and has a maximum grade of 5%. The submerged section drops below the canal so that the top of the structure is from 6 to 8 ft below the project depth of 12 ft.

At midstream, the level of the roadway is 37½ ft below the normal water surface.

The tube is part of the four-lane West Bank Expressway (ENR June 16, 1955, p. 49), which will connect New Orleans with the rapidly expanding industrial area of Jefferson Parish (county) by way of the new Mississippi River Bridge, which is now under construction.

Financially, the project is a joint venture of the federal, state and parish governments.

Traffic is controlled by signals at the ramps and portals of the tunnel. These lights automatically turn red when a high content of carbon monoxide is recorded or when water flows over the roadway at mid-canal.

Pumps at mid-canal and at the portals provide a total pumping capacity of 800 gpm at the center and 2,000 gpm at each portal—a necessity because of the almost tropical rainstorms common in the area.

According to the engineers, this system is capable of handling five inches of rainfall per hour with a maximum five minute intensity of 11 in. per hour. The pumping system is designed to start automatically when water reaches the portals.

Some 3,520 timber bearing piles were driven and about 2,500 tons of reinforcing steel and 39,200 cu yd of concrete were placed.

Consultants were Palmer & Baker, Inc., New Orleans. R. P. Earnsworth & Co., Inc., and Mason & Hanger-Silas Mason Co., Inc., were the contractors.

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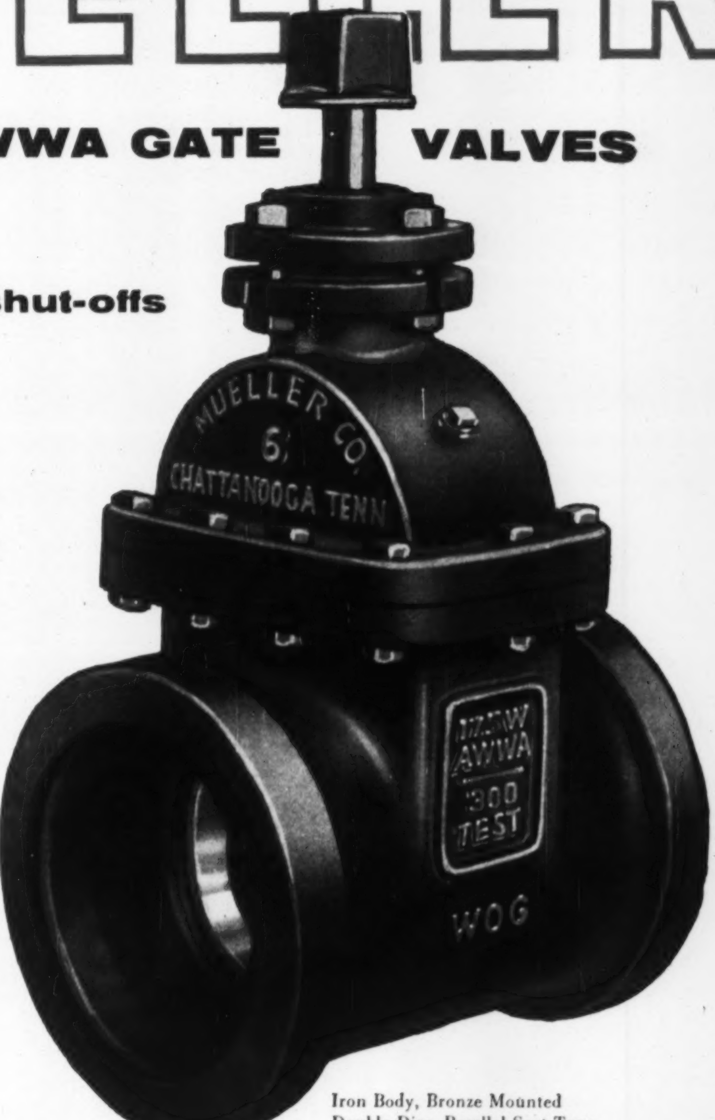

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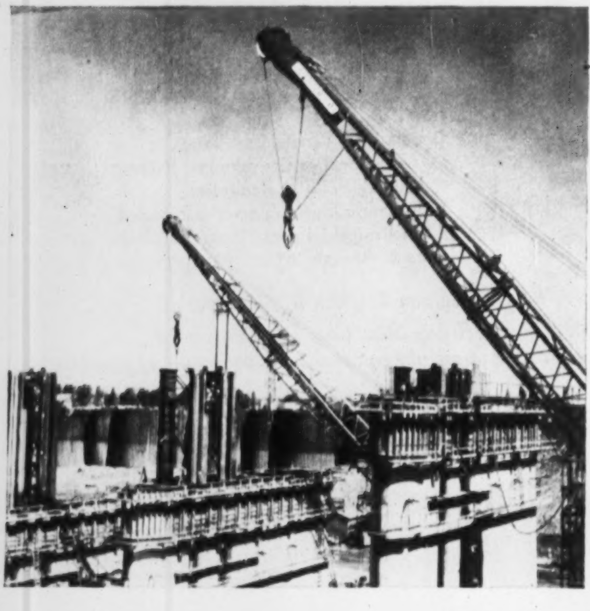
1 **MR. WIRE ROPE**—Ed Carey (right), Tiger Brand Wire Rope sales representative, is known as "Mr. Wire Rope" on the St. Lawrence Seaway & Power Projects. Ed is checking sheave grooves on a walking dragline with Mr. Mel Poeschl, Equipment Superintendent for Waddington Constructors, combine composed of Kiewit, Morrison-Knudsen.

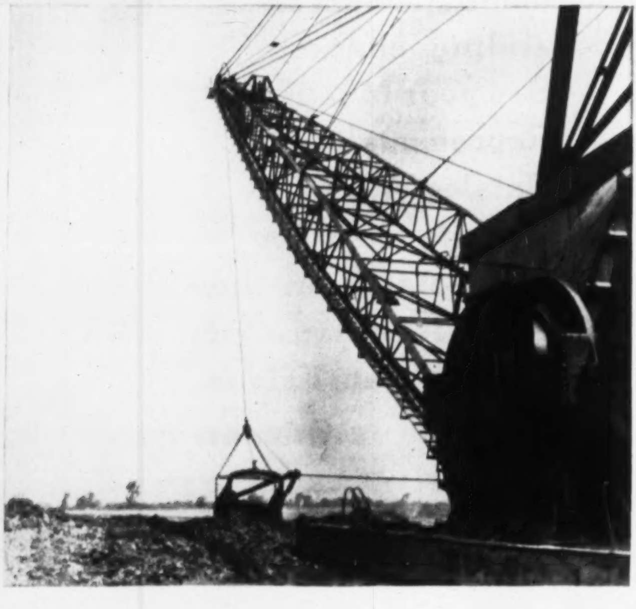
2 **GRASSE RIVER LOCK**, St. Lawrence Seaway. Gantry cranes rigged with ⅞" 6x19 Tiger Brand Hoist Ropes are pouring a total of 376,000 cu. yds. of concrete. This lock is one of two which will provide for raising and lowering vessels to and from the lake created by the Barnhart power dam and the Long Sault spillway dam. General Contractors: Joint venture between Perini, Walsh, Kiewit, Morrison-Knudsen and Utah.

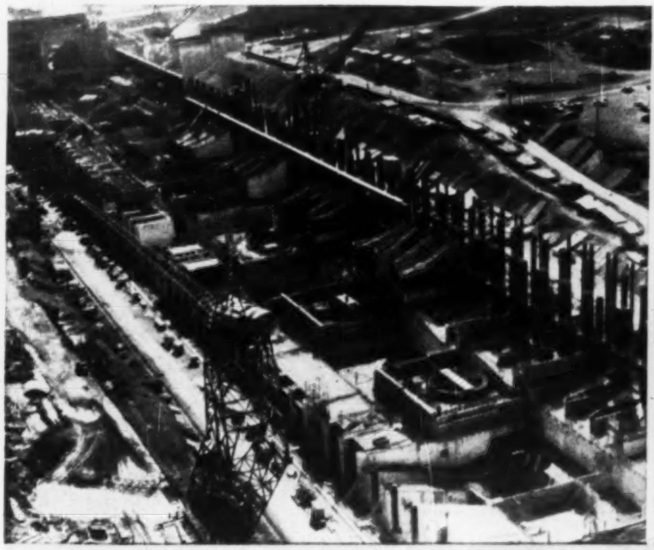
Wire rope makes things hum on the

5 **IROQUOIS DAM**, New York State Power Project. Located 25 miles upstream from Long Sault Dam. This dam is to control and regulate the outflow from Lake Ontario. Cranes are equipped with 1⅛" 18x7 Tiger Brand Non-rotating Hoist Rope. General Contractors: Joint venture between Kiewit, Johnson, Johnson.



6 **LONG SAULT CANAL**, mainland portion, St. Lawrence Seaway. Monighan dragline with 13-cu.-yd. bucket equipped throughout with Tiger Brand Wire Rope. The drag rope is 2⅛" 6x19 Excellay Monitor Lang Lay IWRC. This job involves digging 12,000,000 cu. yds. of heavy marine clay and cemented glacial till, two of the most tricky and unpredictable materials you can find. General Contractors: Joint venture between Kiewit, Morrison-Knudsen.

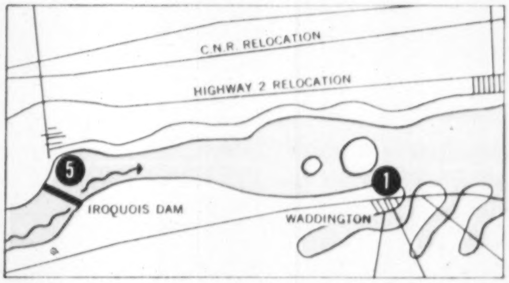


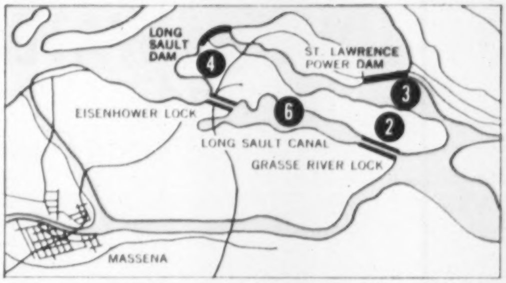


3 **ST. LAWRENCE POWER DAM.** New York State Power Project. Photo shows U. S. Section. Combined Canadian and American power houses will produce 1,880,000 kilowatts, half to each nation. Whirly cranes erecting forms and pouring concrete are rigged with Tiger Brand ⅞" 6x19 Hoist Rope Excellay Monitor IWRC. General Contractors: Joint venture between Perini, Walsh, Morrison-Knudsen, Kiewit, Utah.

4 **LONG SAULT SPILLWAY DAM, FIRST SECTION,** New York State Power Project. This dam controls the flow of water into the power pool and thence to the power dam. At present all of the St. Lawrence flows through this section. General Contractors: Joint venture between Walsh, Perini, Morrison-Knudsen, Kiewit, Utah.

St. Lawrence Seaway and Power Projects





This is the big year on the St. Lawrence Seaway and Power Projects. Contractors are rushing to complete their jobs on time. Everywhere you look, big shovels and draglines are digging 24 hours a day. Huge gantry cranes are setting forms and pouring concrete. The St. Lawrence River has been moved so many times it doesn't know its own bed.

All this adds up to a situation that demands the most from machines and wire rope . . . and most of the wire rope on the American jobs is Tiger Brand.

Contractors wanted quality wire rope in a hurry. So, American Steel & Wire set up a warehouse in nearby Massena. They staffed it with competent men who brought in a complete stock of Tiger Brand Wire Rope in all types and sizes. Thus, the best rope obtainable could be delivered to the job sites in a matter of hours. The illustrations show a few of the locations where Tiger Brand Wire Rope is hard at work.

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Briefs

• **Dalles on line**—Power from the first of The Dalles Dam's 14 main generators will go on the line about Sept. 25, more than a month ahead of schedule. The second 78,000 kw generator will go on the line a few weeks later, also ahead of schedule. By 1960, The Dalles powerhouse is to contain 14 operating generators and eight empty stalls.

• **Another start**—With a Federal Power Commission license expected to be received soon, the Sacramento Municipal Utility District has set Sept. 28 as groundbreaking day for its $85 million Upper American River hydro project in Northern California. The project will develop a peak power capacity of 206,000 kw, with first power expected in 1961.

• **More sewage works money**—A $4.8 million increase in funds for a sewage disposal program in Seattle has been voted by the City Council, making a total of $11 million available for 10 projects under way or soon to be started. The program is being financed by a monthly sewer charge.

• **Research laboratory**—The Allis-Chalmers Manufacturing Co. has started construction of a $3.3 million engineering and development and research laboratory center at Harvey, Ill. Major structures to be built include a central engineering building, an engine and material handling product development laboratory and an engine test wing accommodating 32 engine dynamometers. General contractor and designer for the project is the H. K. Ferguson Co., Cleveland.

• **Pittsburgh office building**—The new 14 story Pennsylvania Railroad office building at Forbes St., Pittsburgh, is being built astride the railroad's 4th St. station with a clear span of 44 ft across the main line track. The first three floors, of concrete frame and floor construction, will contain a parking garage handling 418 cars. The 11 story office section is of steel frame construction with an aluminum and glass curtain wall facade. Designed by Hedrick and Stanley, Fort Worth architect-engineers, the building is expected to be completed in December, 1957, at a cost of $2.5 million.

• **Canadian air sampling network**—The Federal Health Department of Canada is considering establishing a national air sampling network as part of the fight against increasing air pollution of Canadian cities. The proposal has been communicated to all provincial health departments and most of the larger Canadian cities.

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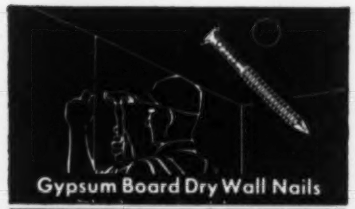
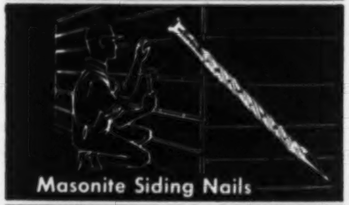
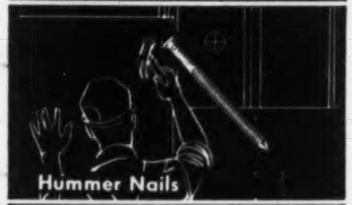
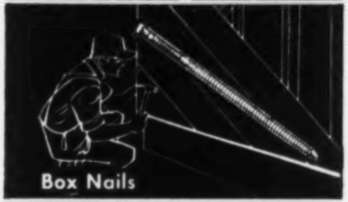
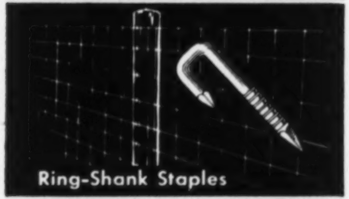
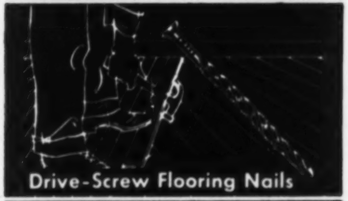

Gypsum Board Dry Wall Nails

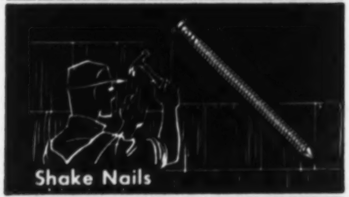

Masonite Siding Nails

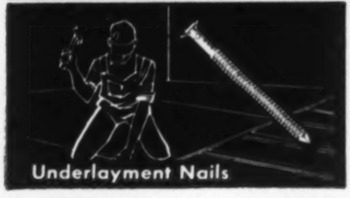

Hummer Nails




Ring-Shank Staples


Drive-Screw Flooring Nails


Shake Nails


Underlayment Nails

SHEFFIELD

ARMCO

Ring-Shank and Drive-Screw NAILS

NAILS that hold like Screws!

We started by making them in a limited range of sizes and types. Sheffield Ring-Shank and Drive-Screw nails quickly proved their big advantages to builders. The question was fired at us from all directions. "Why not make these nails in *all* sizes?" Answer: Now you can have a full line of Sheffield Ring-Shank and Drive-Screw Nails to give multiplied holding power in any common-nail application.

Up to 8 TIMES or Greater Holding Power

Tests in a leading University with Sheffield Ring-Shank and Drive-Screw Nails showed average withdrawal resistance of 320% and 251% (respectively) greater than same-size plain-shank nails, immediately after being driven. After nine weeks and a drop in moisture content of the wood from 17% to 10%, withdrawal resistances of these Sheffield nails averaged 774% and 841% greater than the common nail. HOLDING POWER ACTUALLY INCREASES WITH TIME!

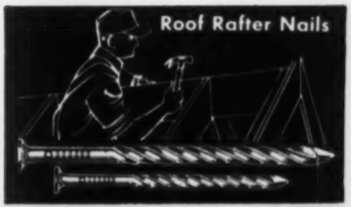
Step up Strength of Wood Structures at Little or No Extra Cost

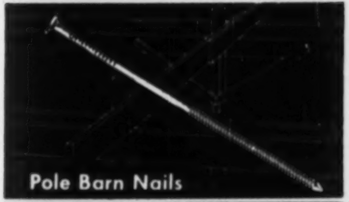
Sheffield Ring-Shank and Drive-Screw Nails actually can make joints stronger than their members — often with a decrease in number of nails required. Experimental dwellings have proved that a better, stronger structure can be built at less nailing cost with these advanced type nails.

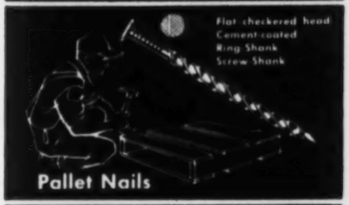
Put Them to Work for You Now

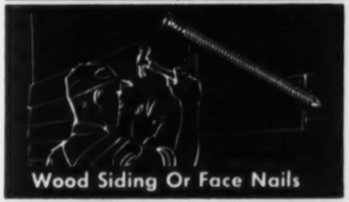
Get these advantages of higher structural strength, new economies in building (and big reductions in long-term maintenance costs for the ultimate owner). Call your nearest Sheffield office or Sheffield distributor.

SHEFFIELD DIVISION
ARMCO STEEL CORPORATION
SHEFFIELD PLANTS HOUSTON • KANSAS CITY • TULSA
Offices and distributors in principal cities


Roof Rafter Nails


Pole Barn Nails


Flat checkered head
Cement coated
Ring Shank
Screw Shank
Pallet Nails


Wood Siding Or Face Nails

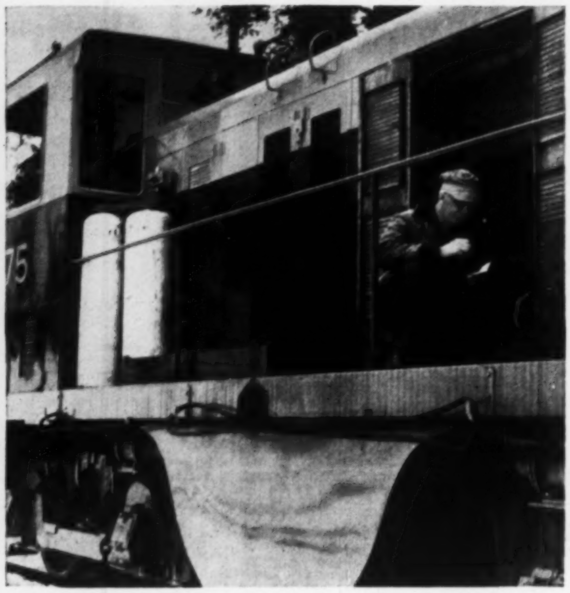
FRAMING NAILS

ROOFING NAILS

ROOF DECKING NAILS

Write for your copy

A single drop of used oil from this truck indicates true condition of the vehicle's oil . . . and tells a lot about the engine's operation.



Daily oil checks assure maximum lubrication efficiency in this diesel locomotive.

Now—they're testing used oil in minutes

The need for a fast, accurate and practical method for determining the condition of used oil has long been one of the more serious problems confronting fleet operators. It's obviously wasteful to discard still-good oil, but operating a vehicle with contaminated oil could lead to costly engine damage. This was an unsolvable condition which maintenance men had come to accept.

Since no two vehicles, even of the same make and model, are identical in performance or operation, maintenance men were compelled to compromise on oil change "averages" recommended by engine manufacturers. This procedure is uncertain and costly. Fortunately, this operating conflict has been resolved with the introduction of a simple but completely reliable oil check system . . . the Shell ADC Oilprint Analysis.

The ADC Analysis was primarily conceived to determine proper oil change intervals for individual engines. However, it goes much further. It is capable of actually reducing engine maintenance costs by disclosing certain mechanical defects *before* they have caused serious engine damage.

The test procedure is very simple . . . requires little practice to perfect . . . and provides a reliable check of oil from merely two drops of used oil. In minutes, the degree of *A*lkalinity, *D*ispersancy and *C*ontamination can be determined easily.

Here are several typical examples from various areas of the country. They show how fleet operators, employing both diesel and gasoline engines, have successfully and profitably applied the ADC program.

A Kansas City Freight Line

Operating a large fleet of trucks, one Kansas City freight line previously had drained and replaced oil every 3,000 miles. After adopting the ADC Oilprint Analysis, individual test charts showed that, in most cases, drainage would not be necessary at less than 6,000-mile intervals. Even at this doubled interval, engine life was not affected. Further proof was established when these engines were inspected at 87,000 miles and no appreciable wear was found on bearings, pistons, rings or valves.

An Idaho Logging Operation

Oil had previously been drained after a limited number of hours of use on an Idaho company's diesel locomo-

Substantial oil economy is realized in this tractor, because oil is changed only when indicated by the Oilprint.

Taking a quick "fingerprint" of crankcase oil from an interstate carrier.

tives. With the ADC Oilprint Analysis as a guide, the oil-change interval has now been safely increased manyfold. The savings made possible by this on-the-spot test in oil, filter change and labor costs were considerable. Furthermore, leaky head gaskets are frequently discovered before any serious engine trouble develops. Here is another valuable plus for the ADC Oilprint Analysis.

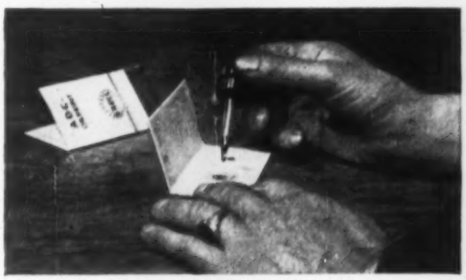
A Washington, D.C., Transit Company

This transit company operates a large fleet of buses with both gasoline and diesel engines in use. With the difference in operating schedules . . . rush hours, short and long hauls, around-the-clock schedules . . . both engine types were believed to require complete oil changes every 2,000 miles. When the ADC program was instituted, the tests showed that oil-drain periods and minor maintenance checks could be safely extended to every 3,000 miles for gasoline engines and 4,000 miles for diesel engines.

Fleet operators, who are concerned with extending the service of crankcase oil and avoiding the risk of using contaminated oil, are invited to sit in while a Shell service engineer demonstrates the time-and-money advantages of an ADC Oilprint Analysis program.

SHELL ADC
OIL PRINT
NO B204
TRUCK 4863
OIL
MILES 85248
TOTAL MILES

Photo shows an oil-spot test card . . . one phase in the visual life record of a change of oil.



One drop of a special indicator* fluid developed by Shell checks the alkaline reserve in the oil.

*Indicator Fluid U.S. Patent No. 2,770,530

SHELL OIL COMPANY

50 WEST 50TH STREET, NEW YORK 20, NEW YORK
100 BUSH STREET, SAN FRANCISCO 6, CALIFORNIA

◄ **THIS** elevated water tank was not high enough to provide the service required of it, so . . .

. . . jacks like this one, 12 of them, were put to work hoisting tower columns up within newly erected "box" columns that enclosed them.

City Grows, Water Demand Grows,

To drive a golf ball farther, it may help to tee it higher or lower. To distribute water farther or at greater pressure it is always important to "tee" it up high in its distribution-line storage.

In Rocky Mount, N. C., Chicago Bridge & Iron Co. has recently "teed" a million gallons of water 25 ft higher without disassembling the 416 tons of tank involved and without moving it to new foundations.

The 25-year-old tank was simply jacked up. Close-fitting columns of box construction were erected around the outside bottom columns of the original structure; the tank and its supporting structure were jacked upward using the new columns as sleeves; and a new 25 ft high bottom panel was added to the tower by the addition of struts and diagonals to the new columns.

A new million-gallon Horton radial cone tank had just been erected for Rocky Mount, so there was no interruption in city water service while the old tank was being raised.

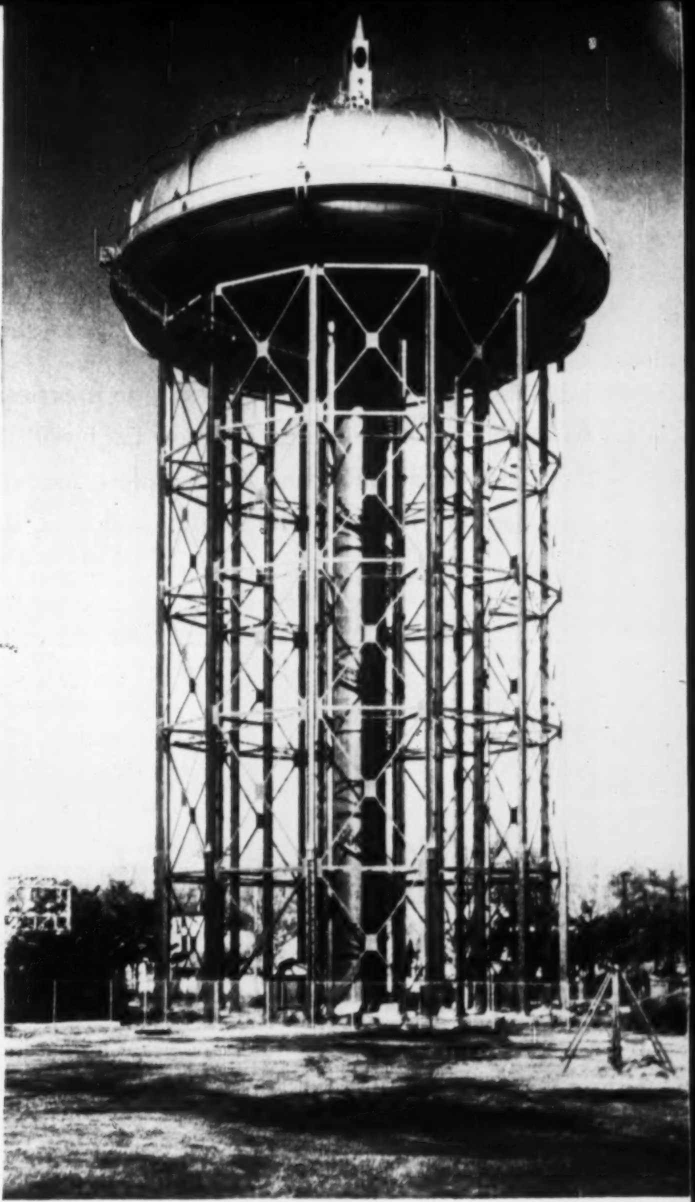
• How it was hoisted—A ring was fastened on the tank's central riser about 25 ft above the foundation. Temporary cables were run from this ring to the top of the outside columns to support both the riser and the central portion of the tank bottom: Then the riser was cut a short distance above its foundation. Otherwise it was not necessary to disturb connections or fittings of the elevated tank.

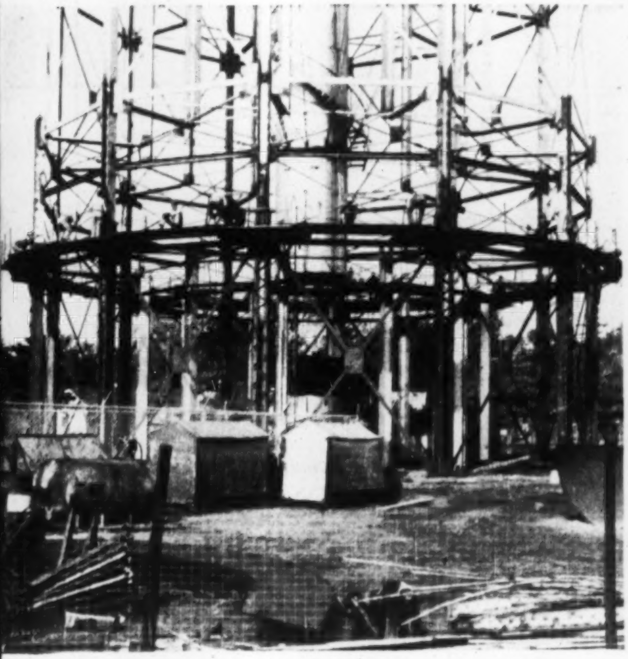
Next, each of the inside circle of columns was disconnected at the top of the first panel, leaving the bottom sections standing on their foundations and all of the upper inside columns hanging free. Then, one at a time, the tanks' outer columns were cut loose from their base plates. As this cutting proceeded the diagonal bracing was removed and the new box column was constructed around each old column. New bottom-panel struts and diagonals also were installed as the cutting proceeded, and lateral bracing was connected between the tops of the new sleeves and the inside columns of the tower.

With a full ring of sleeve-columns erected and braced against wind forces, the elevated tank was ready to be raised.

NOW THIS is the relative height of the ▶ whole structure, 25 ft having been added by insertion of . . .

. . . the new panel of box columns at foundation level. Five of the 12 men jacking appear in the picture below, taken as the tank "grew."





Elevated Water Tank Grows, Too

• Up it goes—A scaffold was built about 22 ft above the foundation and twelve 75 ton, manually operated jacks were positioned—one at the top of each new outer column. The jacks rested on a seat prepared for them atop the new outer columns and acted upon lugs welded between flanges of the original bottom panel columns. These lugs were moved one at a time and rewelded each time a jack approached the limit of its extension.

A pointer attached to each outer column measured movement on a scale fixed to each inner column, enabling jack operators to keep the structure precisely level, the weight evenly distributed at all times.

Twelve men operated the jacks in unison, each operator making his stroke in time with sound signals given by a supervisor. Some 19,500 strokes on each of the 12 jacks were required to raise the tank and tower the required 25 ft (each stroke moved the structure about $\frac{1}{64}$ in.).

When about one-third of the lift had been accomplished, a temporary horizontal strut and diagonal rods were attached to the original outside columns in each bay. When two-thirds of the job was completed another such set of temporary struts and rods was installed.

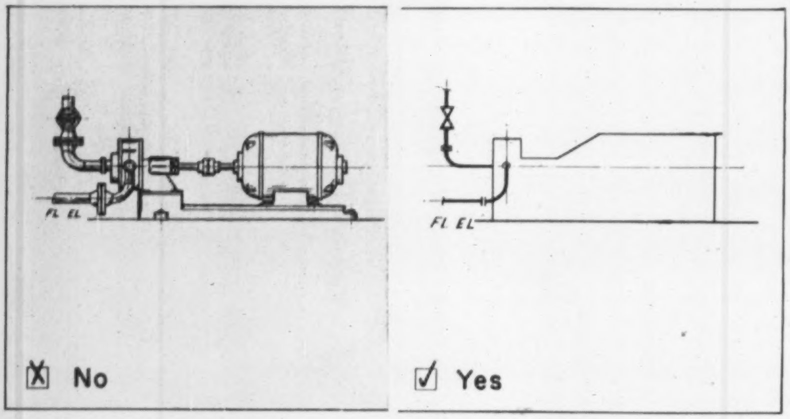
• And onto new columns—The tank actually was raised 2 in. higher than the required 25 ft at the end of the hoisting in order to permit insertion of new columns in the tank's inside ring of support. Then the structure was lowered 2 in. to its final position, and the original outer bottom columns were welded to the tops of the new outer bottom columns. All temporary struts and rods were removed at this point in the operation and replaced by permanent new diagonals.

Finally a new 25 ft section was added to the riser, a new section of spiral stairway was inserted and the erection crew turned the "stretched out" tank over to the painters.

Special procedures and equipment were developed by Frank Wurst of the general erection department of Chicago Bridge & Iron.

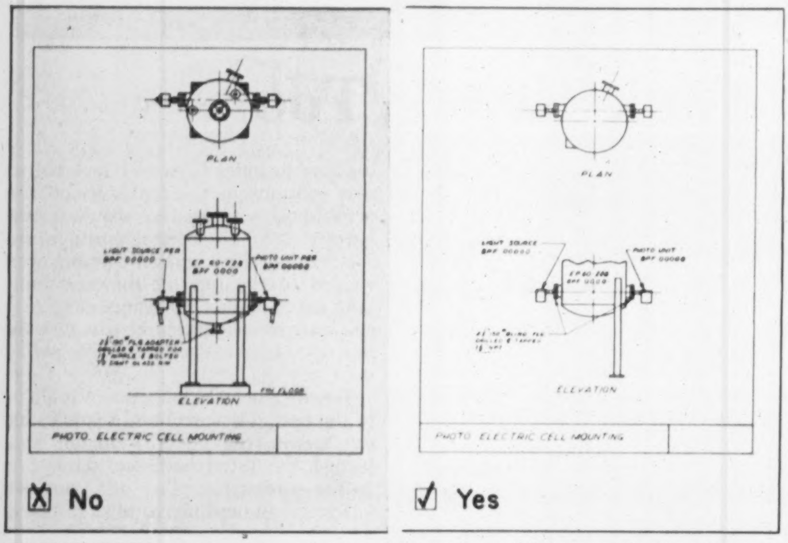
Simplification . . .

. . . is the first step toward better design practices, says Ralph A. Fuller, du Pont Design Division Engineer. Also, try for more standardization and use templets, model studies and photography to get better results and save drafting time.



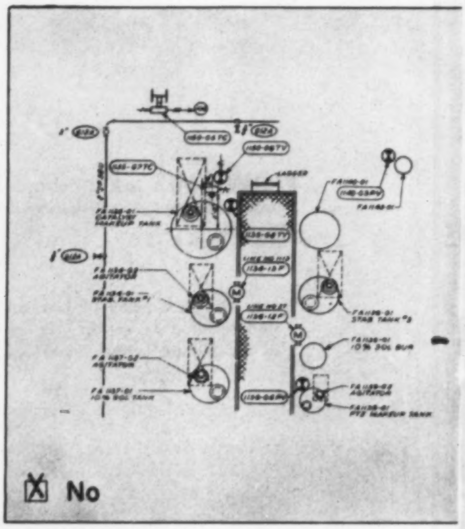
☒ No ☑ Yes

ARTISTRY adds nothing useful to an engineering drawing; the fancy drawing of a motor-driven pump (left) offers no advantages over the simple outline (right).



☒ No ☑ Yes

EXCESS DATA clutters up a drawing (left) without helping construction forces or fabricators. A good drawing (right) is clear, concise, complete.



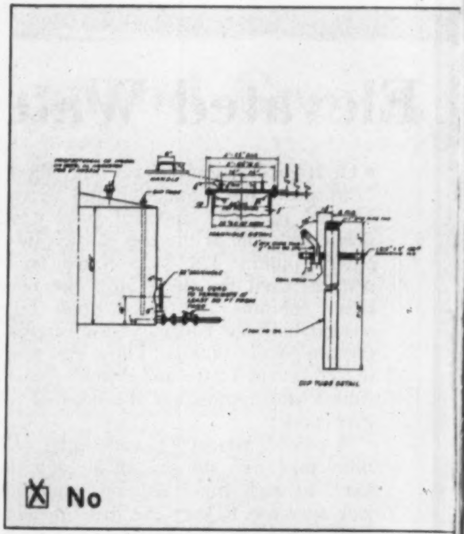
☒ No

EXCESS LINEWORK in the drawing above has been omitted from the one on the right, which du Pont finds serves the

How to Step up

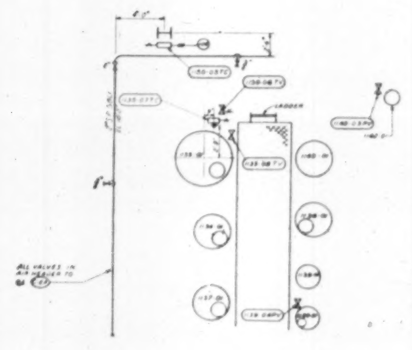
A three-year study carried out by a committee of designers of E. I. du Pont de Nemours & Co. culminated in a multitude of recommendations for "updating design practices for tomorrow's engineering." These were immediately adopted by the engineering department, headed by Granville M. Read. Considerable savings resulted, and in addition, designers now have more time for creative thinking.

•Du Pont's Designer Practices Pro-



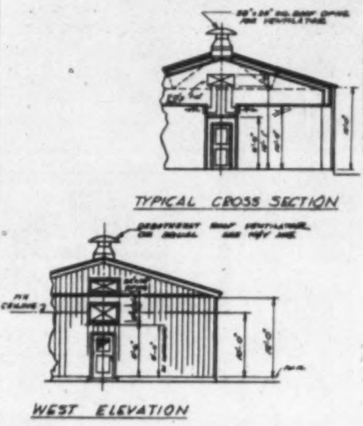
☒ No

WRITING OUT names and specifications on a drawing (left) also clutters it up

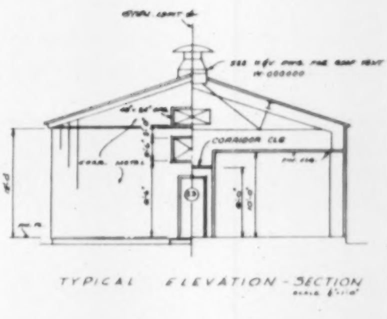


☑ Yes

same purpose, but with less strain on the draftsman. Since numbers identify the equipment, why name or draw in detail?



☒ No



☑ Yes

UNNECESSARY VIEWS and duplicate information, as demonstrated above, waste a draftsman's time. Full cross section and elevation (left) of a symmetrical building can be combined in a single drawing (right), with dimensions and notes given only one time.

Your Design and Drafting Efficiency

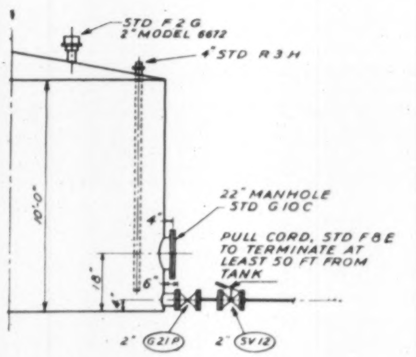
gram, which produced these results, was outlined by Ralph A. Fuller, Design Division Engineer, at a meeting of the New York Chapter, New York State Society of Professional Engineers. Because other engineering offices may be able to apply the same techniques to advantage, highlights of Mr. Fuller's talk are presented here.

For background, you should know that all du Pont's plants are designed and constructed by its central engineering department, which has a reputation for building fast and economically. This department consists of five divisions—Design, Construction, Engineering Service, Development Engineering, and Control.

The Design Division is responsible for all phases of design for new facilities, from gathering of basic data to production of working drawings and specifications. At present, it has 1,100 designers and draftsmen at work on 120 projects.

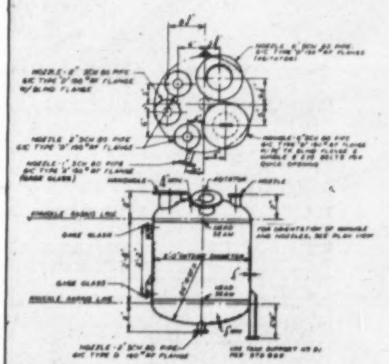
Since Dec., 1953, a 7 member practices committee and 24 subcommittees have been developing the Designer Practices Program. Out of it has come the vital "Minimum Adequate Design" concept, which has been successfully applied at du Pont to ease the burdens of the design staff.

Recommendations of the committee led to establishment of minimum requirements for drawings that would not reduce efficiency of construction and

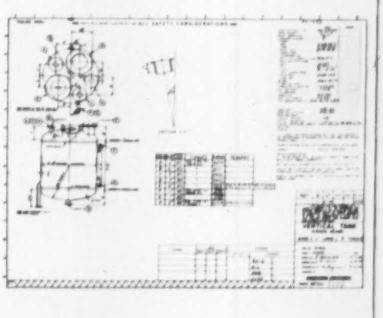


☑ Yes

and is time-consuming. Refer to standards (right); it's faster and simpler.



☒ No



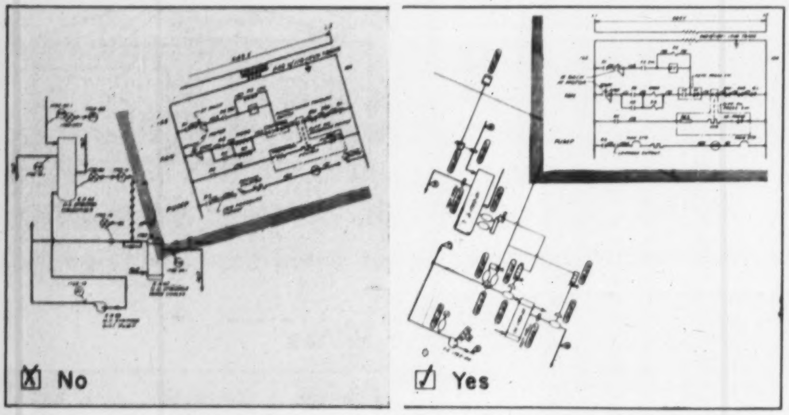
☑ Yes

TIME-CONSUMING LETTERING on a drawing (left) can be eliminated by use of preprinted forms (right), with title box and tables for design data.

. . . Simplification cuts drafting costs

shop workers. The program aims at eliminating from drawings everything that is not essential for accuracy, clarity, completeness or usefulness.

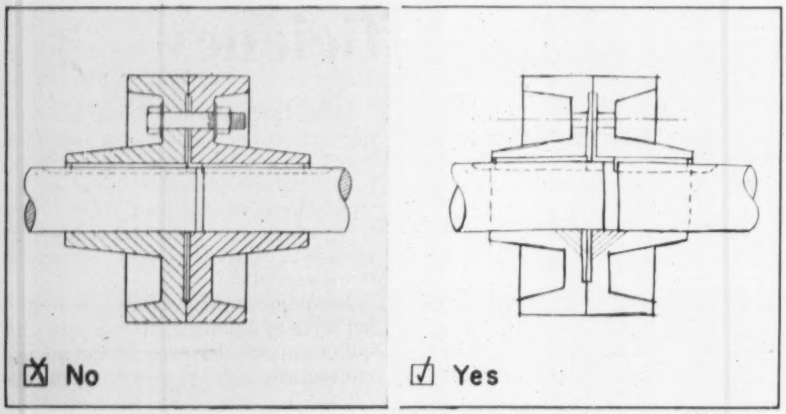
On the following pages are summarized various phases of the program, including use of standards, model studies, templets, photography, pre-printed tracings, design forms, symbols, codes and abbreviations.



☒ No

☑ Yes

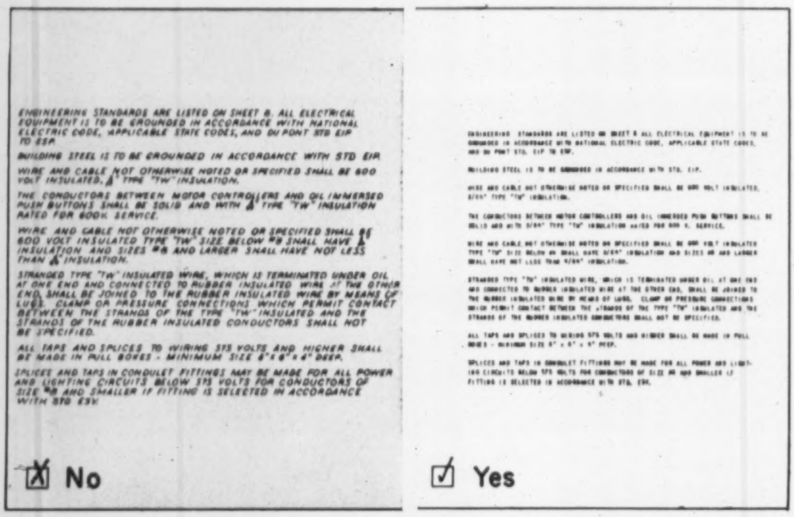
SPELLED-OUT WORDS (left) do not insure any better field work than standard symbols (right) that represent the same thing. Templets can speed drawing of equipment shown.



☒ No

☑ Yes

FREEHAND SKETCH (right) is faster to make and sometimes may serve the same purpose as a time-consuming drawing (left) made with scales, triangles and compasses.



ENGINEERING STANDARDS ARE LISTED ON SHEET 8. ALL ELECTRICAL EQUIPMENT IS TO BE GROUNDED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE, APPLICABLE STATE CODES, AND DU PONT STD EIP TO ESP.

BUILDING STEEL IS TO BE GROUNDED IN ACCORDANCE WITH STD EIP.

WIRE AND CABLE NOT OTHERWISE NOTED OR SPECIFIED SHALL BE 600 VOLT INSULATED, 3/64" TYPE "TW" INSULATION.

THE CONDUCTORS BETWEEN MOTOR CONTROLLERS AND OIL IMMERSED PUSH BUTTONS SHALL BE SOLID AND WITH 3/64" TYPE "TW" INSULATION RATED FOR 600V. SERVICE.

WIRE AND CABLE NOT OTHERWISE NOTED OR SPECIFIED SHALL BE 600 VOLT INSULATED TYPE "TW" SIZE BELOW #8 SHALL HAVE 3/64" INSULATION AND SIZES #8 AND LARGER SHALL HAVE NOT LESS THAN 4/64" INSULATION.

STRANDED TYPE "TW" INSULATED WIRE, WHICH IS TERMINATED UNDER OIL AT ONE END AND CONNECTED TO RUBBER INSULATED WIRE AT THE OTHER END, SHALL BE JOINED TO THE RUBBER INSULATED WIRE BY MEANS OF LUGS. CLAMP OR PRESSURE CONNECTIONS WHICH PERMIT CONTACT BETWEEN THE STRANDS OF THE TYPE "TW" INSULATED AND THE STRANDS OF THE RUBBER INSULATED CONDUCTORS SHALL NOT BE SPECIFIED.

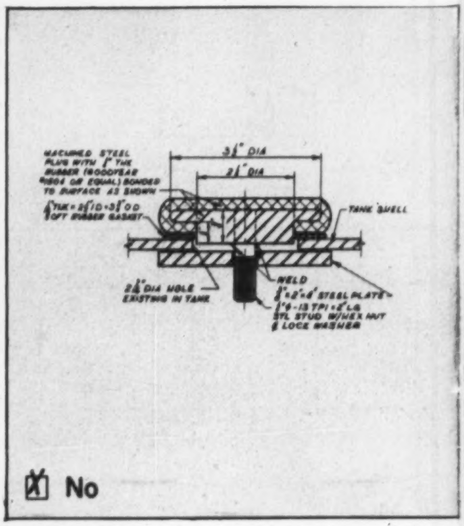
ALL TAPS AND SPLICES TO WIRING 575 VOLTS AND HIGHER SHALL BE MADE IN PULL BOXES - MINIMUM SIZE 6" x 6" x 4" DEEP.

SPLICES AND TAPS IN CONDULET FITTINGS MAY BE MADE FOR ALL POWER AND LIGHTING CIRCUITS BELOW 575 VOLTS FOR CONDUCTORS OF SIZE #8 AND SMALLER IF FITTING IS SELECTED IN ACCORDANCE WITH STD ESV.

☒ No

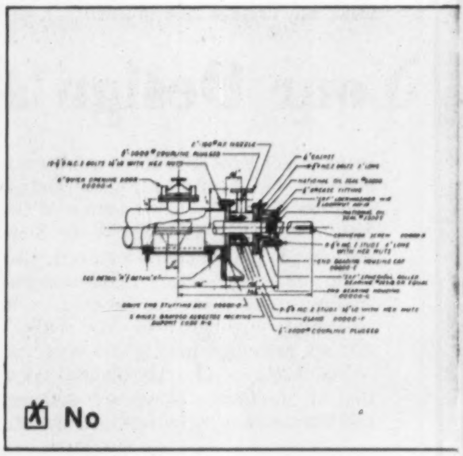
☑ Yes

HAND LETTERING (left) of voluminous General Notes and tabulations is much slower and more difficult to read than typed material (right).


MACHINED STEEL PLUG WITH ⅛" THK RUBBER (GOODYEAR #1604 OR EQUAL) BONDED TO SURFACE AS SHOWN
⅛" THK × 2⅝" ID × 3⅝" OD SOFT RUBBER GASKET
3⅝" DIA
2⅝" DIA
TANK SHELL
2⅝" DIA HOLE EXISTING IN TANK
WELD
⅜" × 2" × 4" STEEL PLATE
⅜"φ - 13 TPI × 2" LG STL STUD W/HEX NUT & LOCK WASHER

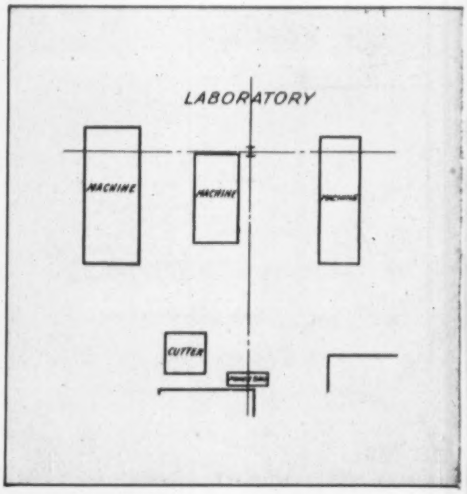
☒ No

CROSS HATCHING (left) can be useful in clarifying a drawing but in the interests

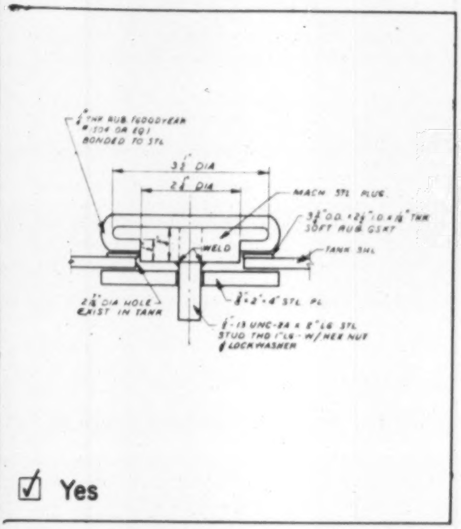


☒ No

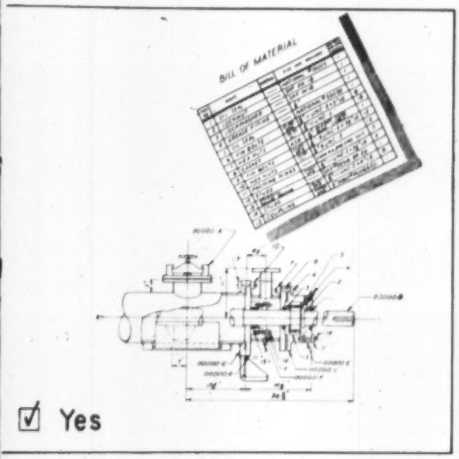
SCATTERED NOTES (left) make a drawing difficult to read. Tabulations and short


LABORATORY
MACHINE
MACHINE
MACHINE
CUTTER

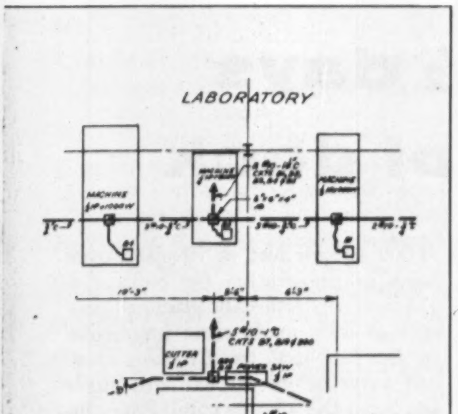
REPRODUCTIONS can save much drafting time. For instance, the electrical draw-


THK RUB (GOODYEAR #1304 OR EQ) BONDED TO STL
3 DIA
2 DIA
MACH STL PLUG
3 O.D. × 2 I.D. × THK SOFT RUB GSKT
WELD
TANK SHL
2 DIA HOLE EXIST IN TANK
× 2" × 4" STL PL
-13 UNC-2A × 2" LG STL STUD THD 1" LG - W/ HEX NUT & LOCKWASHER
☑ Yes

of drafting efficiency should be kept to a minimum or eliminated entirely (right).


BILL OF MATERIAL
☑ Yes

references to other sources of data (right) are easier on both field and office men.


LABORATORY
MACHINE
MACHINE
MACHINE
CUTTER
POWER SAW
10'-3"
6'-9"

ing (right) was made by superimposing the wiring diagram on an architectural print (left).

DESIGN DIVISION
STANDARDS FOR DESIGN

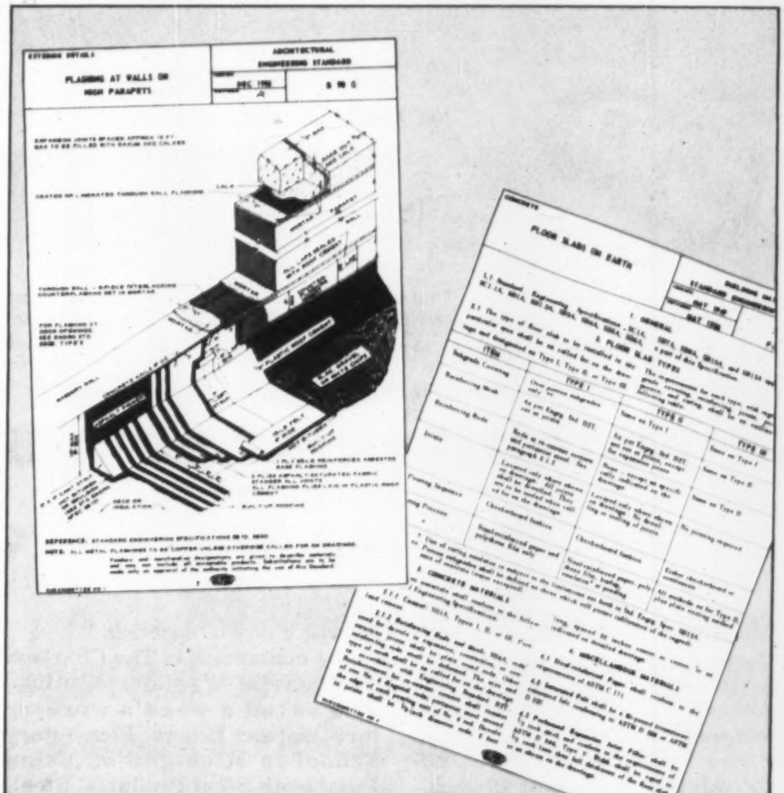
Save Time by Using Design Standards

Application of more than 1,500 engineering standards is essential to the Minimum Adequate Design concept at du Pont. Their use saves time, produces quality results and reduces manpower requirements.

Last year, du Pont and its design and drafting subcontractors used standards more than 370,000 times at a reported savings of about \$2.5 million. Mr. Fuller estimates this is equivalent to a reduction in technical personnel of 140. The standards program currently offers the company a return of about \$4 for every dollar spent on standards activities.

The standards, referred to on drawings by code number, are kept in a set of looseleaf books. Each volume is devoted to specific subjects—architectural, concrete-steel, electrical, power, heating and ventilating, machine design, etc.

A part of the Design Division, called the Standards Section, is responsible for coordination and output of subcommittees in producing new standards and keeping existing ones up to date. The standards cover repetitive drawing details, performance and material specifications, and design aids, such as formulas, computation methods and material properties. Copies of the standards are attached to the drawings referring to them and are distributed to purchasing and construction forces.



ARCHITECTURAL ENGINEERING STANDARD

FLASHING AT WALLS OR HIGH PARAPETS

FLOOR SLABS ON EARTH

STANDARDS, referred to on drawings by code number, cover details, e. g., flashing at walls and parapets, and specifications, e. g., for floor slab on earth.

A better roof or floor slab results at lower cost when architects and contractors agree on Steeltex Floor Lath, the wire mesh reinforcing that carries its own water-proofed form right on its back. Steeltex can be unrolled, stretched as in the photo above, and clipped with simple tools by workmen without previous training.

Steeltex saved 6½ days on 14,000 sq. ft. roof deck

Pressure on school boards, architects and contractors to finance, design and build new schools is greater than ever.

Although a record 62,000 new classrooms were built in 1956, educators say the nation needs at least 93,000 more each year for the next 10 years.

School boards demand the best value for each construction dollar. They also want their new schools placed in service as fast as possible. A Michigan contractor, to cite a case in point, responded to this need by saving 6½ days on a school job by his wise choice of materials.

The contractor is The Charlson Company of Wyandotte, Mich., who saved a week's working time on the Ecorse Elementary School in Michigan by using Pittsburgh Steel Products' Steeltex Floor Lath. With Steeltex the roof was prepared for concrete pouring in 28 working hours, compared to an estimated two weeks if other forms had been used.

The job called for laying about 14,000 square feet of Steeltex over joists in preparation for pouring a 2½-inch concrete slab. Steeltex' time savings were made more impressive by the fact that the Charlson crew had never before worked with Steeltex. Also, the job was complicated by numerous columns and other irregular shaped objects on the roof deck.

William Johnson, construction superintendent on the job, said use of Pittsburgh Steeltex—the wire mesh reinforcing that carries its waterproofed form right on its back—per-

Steeltex is economical . . . . easy to form . . . . fits irregular shapes.

These photographs show some of Steeltex' money-saving advantages. Above, rods welded to joists eliminate diagonal bridging. Steeltex and concrete give joists lateral stability.

Since Steeltex Floor Lath is easy to bend and cut, one man covered this depressed area in a few minutes. John Casey, architectural superintendent, points to the neat finished job.

Steeltex requires no engineering to make it fit snugly around irregular shapes. On this job, columns were left protruding through the roof to support a future second story.

mitted his men to start laying Steeltex on a Wednesday morning and complete the job Monday noon, just 3½ days later.

Steeltex, sold by the Pittsburgh Steel Products Division of Pittsburgh Steel Company, was specified by the Detroit architectural firm of Giffels & Vallet, Inc., L. Rosetti, Associated Engineers and Architects.

The specification pleased President K. H. Charlson of The Charlson Company who said:

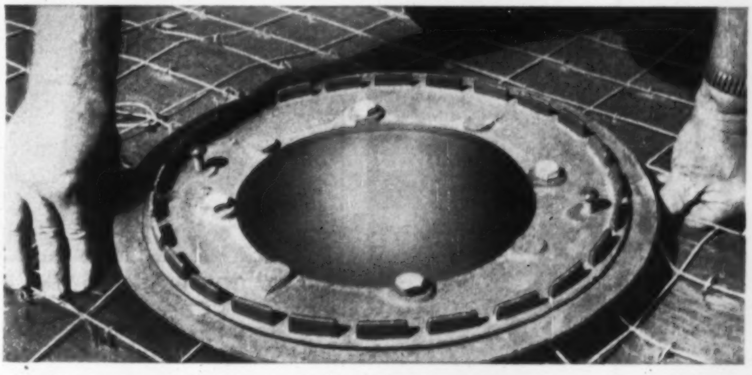
"Steeltex definitely was the best choice. It is a good product that is easier to cut and shape than other material. The paper backing reduces dripping and eliminates clean-up problems on the floor below.

"Steeltex is economical to buy, saves a lot of costly, time-consuming work and produces a high quality concrete slab with good reinforcing."

You, too, can reduce costs and pour concrete decks quicker while improving the quality of floors and roofs—when you use Steeltex.

The special advantages of Steeltex will work as well for you as for this Michigan architect and the contractor.

A trained Pittsburgh Steel Products engineer, with lots of construction know-how, is available close at hand. Call him at any of the district offices listed here. Do it today.



You eliminate messy drip-through on the floor below when you use Steeltex. Mesh and water-proofed paper backing can be fitted right to the edges of objects like this sump on the roof deck.

▶ See Sweets Catalog Section 2-B

Steeltex®

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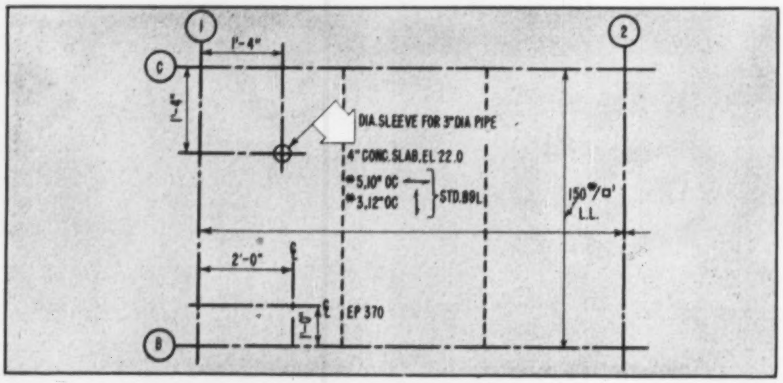
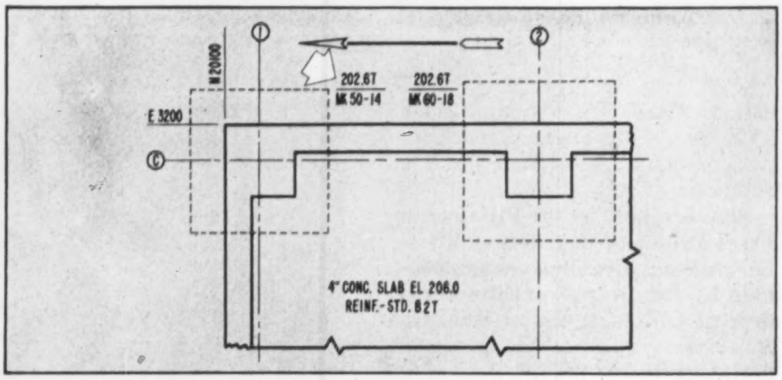
Use More Symbols to Speed Drafting

Mr. Fuller also reports that du Pont achieved a sizable reduction in drafting time by making extensive use of standardized symbols, coding and abbreviations. More than 600 symbols and 2,000 abbreviations have been classified.

Code numbers are used not only for reference to standard details but also, as indicated below, to give data on dimensions and materials.

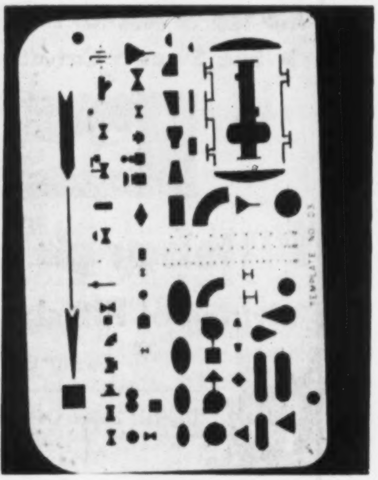


FLOOR PLAN illustrates simplified method of specifying steel reinforcing in aboveground concrete slabs by use of symbols (center).



FOUNDATION PLAN shows how fractional coding identifies a concrete footing and specifies its elevation, thickness and size; together with a du Pont reinforcing bar standard, it provides sufficient data to the construction forces.

Save Labor with Drawing Templets



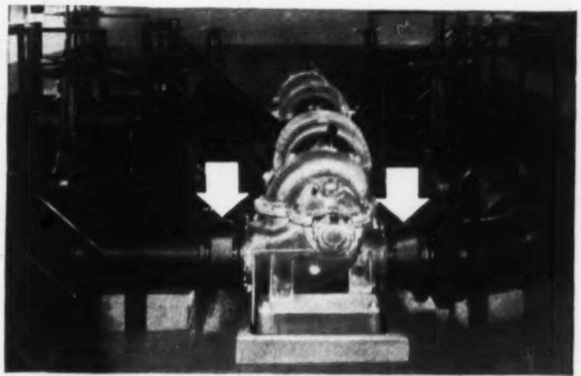
Another time-saver in drafting adopted by du Pont is use of templets. The design division has developed seven to date, covering instrument, process, piping, valve, electrical, architectural and civil engineering symbols. Others are in the development stage.

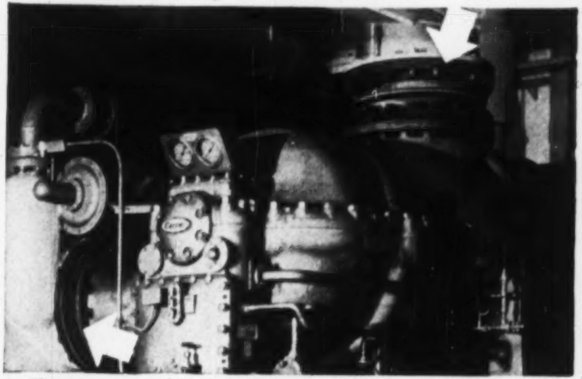
Each templet consists of a sheet of transparent material with a variety of shapes cut out. By tracing the outline of these shapes on a drawing, the draftsman reproduces the desired symbol. For example, the process templet (pictured on the left), is intended for preparation of piping diagrams, fire protection and single-line piping arrangements; it provides symbols for heat exchangers, exhaust heads, funnels, orifices, pumps, pipe fittings, strainers, tanks and valves.

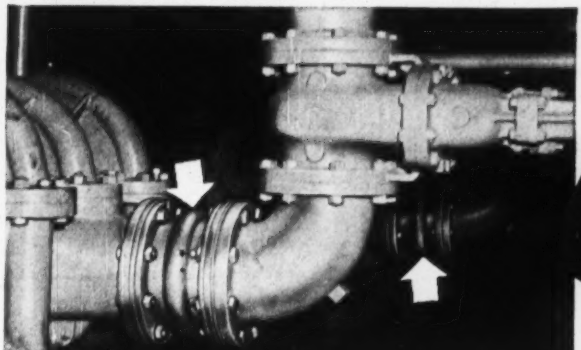
(*Continued on page 46*)

EXPANSION JOINTS

Expanding the Designer's Scope


The flexible rubber expansion joints on the centrifugal pump installations (above) are made by U. S. Rubber. They prevent stresses caused by expansion and contraction.


This compressor has U. S. Expansion Joints on the suction and discharge lines. Like all U. S. Joints, these insulate against the transfer of vibration and noise.


Piping equipped with U. S. Expansion Joint to compensate for any misalignment caused by load stresses, wearing of parts or settling of building.

U. S. Rubber Expansion Joints are resilient and therefore do not, like metal, set permanently when compressed. Constant flexing merely keeps them alive... prevents brittleness.

- They absorb both axial and lateral deflection far more than metal joints. Greater insulation against vibration and pump noises. No electrolysis, corrosion or erosion.
- Handle pressures from 40 lbs. to 125 lbs.
- The outside diameter of the arch is smaller than on metal joints. (Face-to-face dimensions, even with multiple arches, are smaller.)
- Weight is much less. This, plus the fact that no gasket is needed between flanges (metal joints require gaskets) results in an easier installation lowering the cost.

"U. S." was the *first* to develop expansion joints. They are at work in every kind of industry, prolonging the life of equipment in pressure or vacuum pipe systems. Some are still in service, after 30 years of operation. Obtainable at any of the 28 "U. S." District Sales Offices, or write us at Rockefeller Center, New York 20, N. Y. In Canada, Dominion Rubber Co., Ltd.

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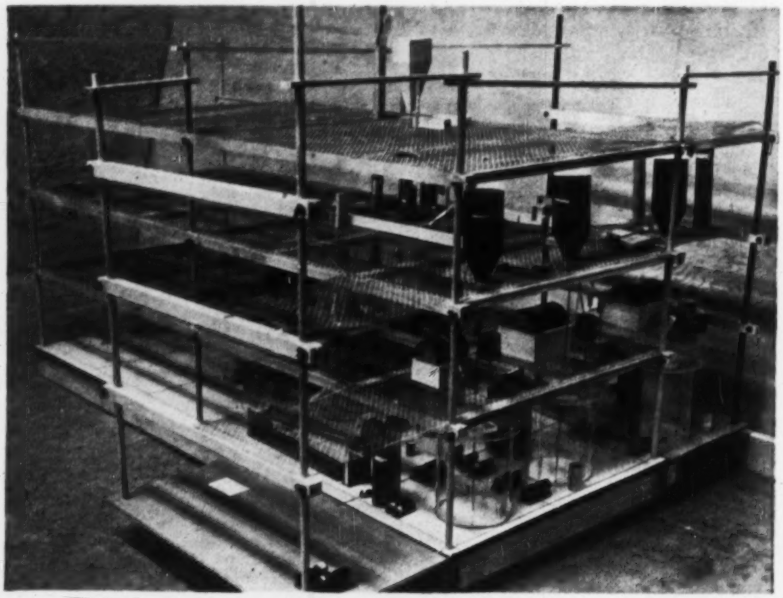
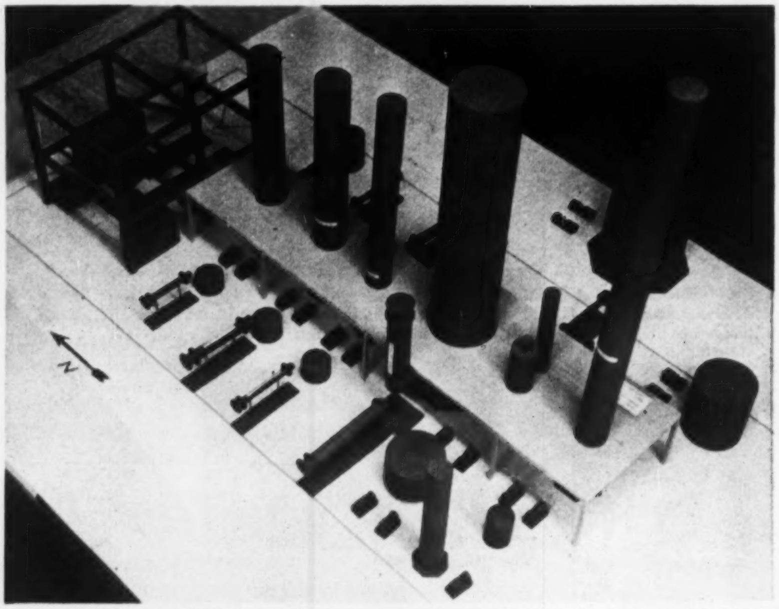


STUDY MODEL, one of several different types of models used by du Pont, is simple and low-cost. It facilitates framing and layout studies in early design stage.



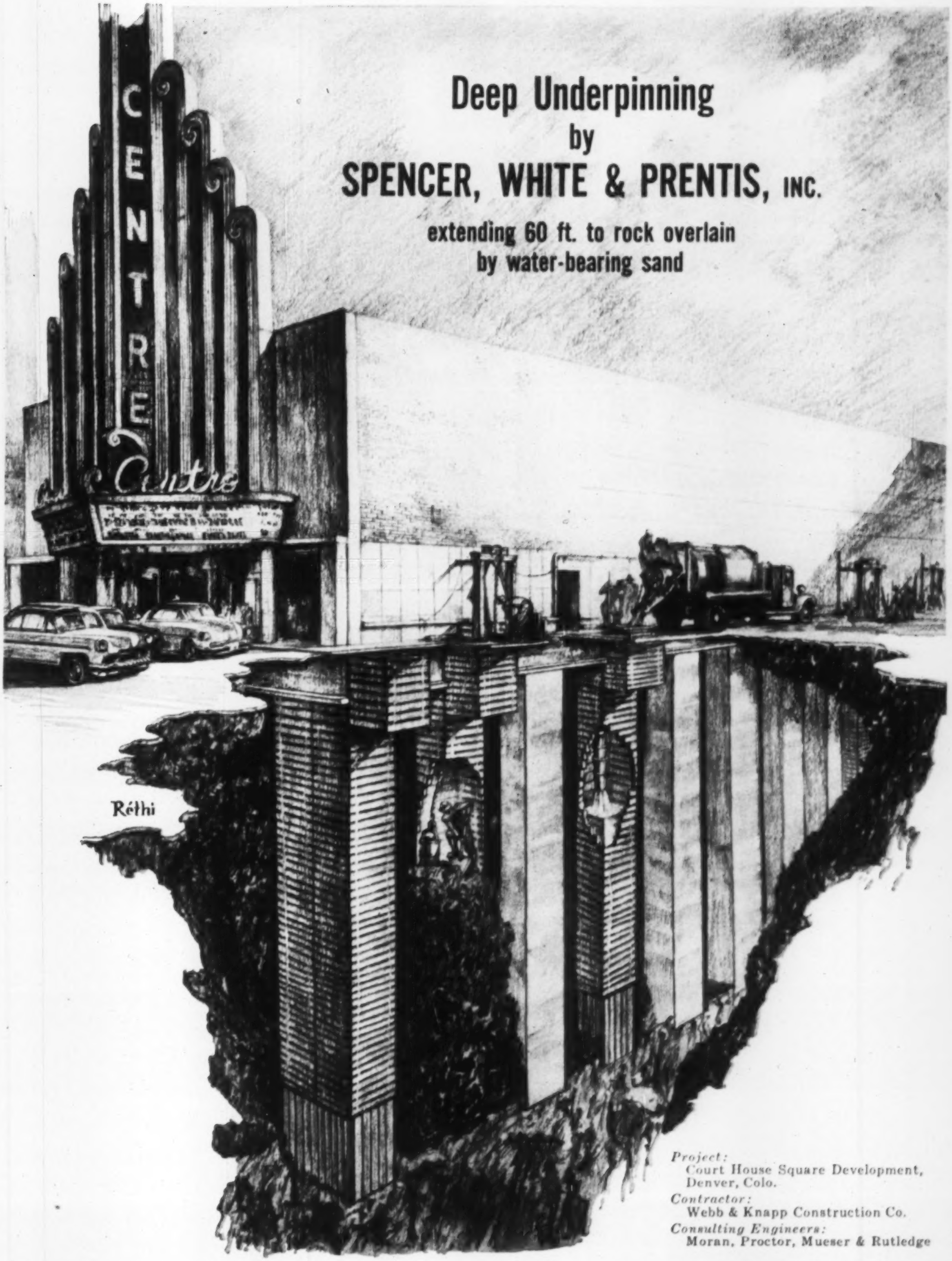
PRELIMINARY MODEL is used in firming up a design, based on the study model. Equipment may be re-arranged at small cost. Final model is based on results from this.

Make Model Studies to Improve Design

Du Pont has used models for many years as key engineering aids in producing economical designs for complex chemical plants. Models have also proved their worth as design tools in reducing drafting time.

One of the many types du Pont uses is the study model, a simple, economical structure with variable size base and story heights and metal or hardware cloth floors. Equipment pieces installed are of simple construction, sized to approximate dimensions and rough cut from wood or plastic. This low-cost model is suitable for study of equipment and structural arrangements in early stages of project design.

Alternative layouts are easily and



Deep Underpinning
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extending 60 ft. to rock overlain by water-bearing sand

Project:
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Contractor:
Webb & Knapp Construction Co.
Consulting Engineers:
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Spencer, White & Prentis, Inc., 10 East 40th St., New York 16, N. Y. • Detroit • Chicago • Washington • Canada swiftly made and the most economical one arrived at in a short time with little or no drafting. In addition, industrial departments are able to make evaluations sooner.

In firming up a design, du Pont designers frequently find it advantageous to make preliminary models, based on the study model. Equipment drawings are first prepared to a completion that permits modeling of equipment to an accurate scale. At this time, no structural steel or concrete drawings are available; simulation of the model building is on a simplified basis. Equipment may be re-arranged many times, at small cost, in the preliminary model to reach design and layout agreements.

Final models are used as design tools, not for display. They are correct to dimension and detail only to the extent required for design. However, they may also be used by construction and operating forces to pre-plan work and train personnel.

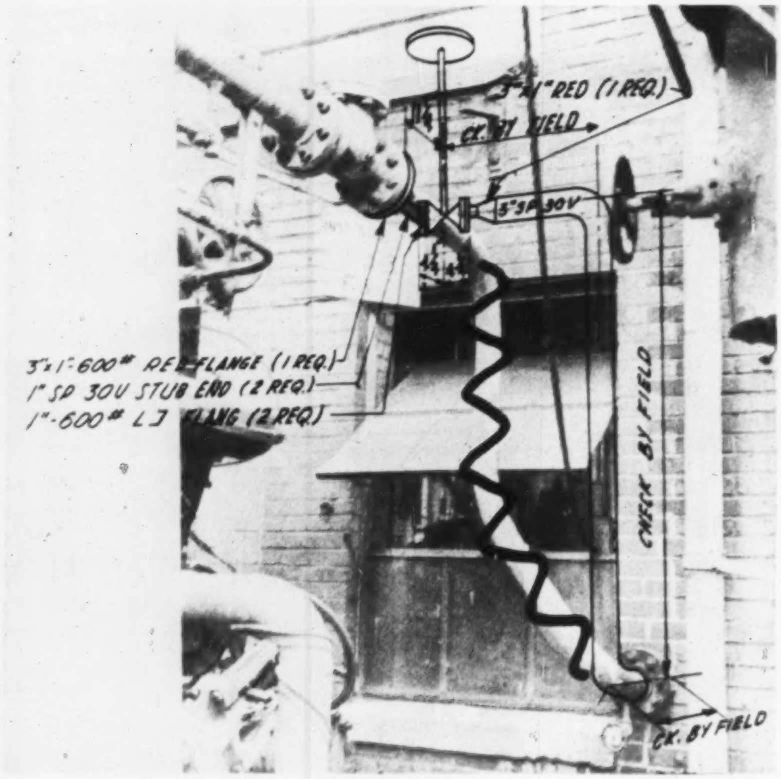
The final model is built in much the same manner as the building is erected in the field. Scaled structural members are assembled and scaled equipment installed in accordance with layouts reached in the study or preliminary model stages.

Laying out piping in the final model is a team effort by model makers and designers working from piping diagrams. Piping drawings are made as the layout progresses, with much saving in time and greater accuracy than by drawing studies. With a final model, industrial department concurrence is more positive and more quickly obtained, compared with use of prints.

At du Pont, the concept of model cost is no longer based on size, number of steel sections, number of equipment pieces, number of pipe lines and amount of details incorporated in a model. Instead, model cost is related to the savings achieved in overall design costs, reduction in drafting, improvement in equipment layouts, betterment of maintenance and decrease in investment costs.

• Model photography—Additional drafting time can be saved by substituting photographs of models for drawings. Models can be photographed in plan and elevation, and they can also be taken apart to permit pictures to be taken of cross sections.

The photographs are converted into photo-tracings through the use of du Pont Cronaflex, a line of engineering reproduction materials coated on polyester photographic film base. Draftsmen then apply notes, dimensions, codes, details, etc. Prints for distribution to construction forces are obtained from photo-tracings by conventional means.


3"x1" RED (1 REQ.)
CK. BY FIELD
5" SP 30V
3"x1"-600# RED FLANGE (1 REQ.)
1" SP 30U STUB END (2 REQ.)
1"-600# LJ FLANG (2 REQ.)
CHECK BY FIELD
CK. BY FIELD

Cut Drafting Costs with Plant Photos

Plant-site photography is another technique du Pont uses to reduce drafting time. When designs are required for alterations or additions to a plant, a photographer, instructed by a designer, takes pictures of existing equipment, piping and building facilities. These pictures then are converted into photo-tracings, to which necessary modifications in equipment and building design are added, including dimensions. If required, portions of the photo of existing facilities are eradicated to permit only new design to show. Prints are obtained from the photo-tracings by conventional processes.

Other Drafting Shortcuts that Pay Off

▶ Among the many other techniques du Pont is employing to save time one of the most noteworthy is use of magnetic layout boards. Cardboard cutouts representing equipment to scale are attached to small magnets, which are then positioned on a steel sheet. Photographs are taken of alternative layouts, which are studied to arrive at design decisions. In this way, little or no drafting is required, until a final decision is made.

▶ Use of pre-printed tracings eliminates time-consuming drafting for repetitive equipment designs. They insure complete design coverage and uniform presentation of data. They also facilitate coordination of work involving several design functions. More than 40 pre-printed tracings have been developed for specific design applications, such as horizontal tank details and separators.

▶ Similarly, pre-printed design forms are available to simplify calculations and tabulations of design data. For example, pump-characteristic development sheets are used to compute flows, select pumps and check the work.

▶ Du Pont has found that for work that lends itself to sketching, designers and draftsmen can make freehand drawings with effectiveness and clarity in less time than by conventional methods. To facilitate use of this technique, sketchers employ ghost-lined cross-section paper or back up 30x42 in. tracing cloths with a board cover of heavy-lined cross-section paper.

▶ Still another technique to reduce drafting time is use of rubber or plastic stamps to duplicate repetitive items, such as wiring or equipment components.

The Minimum Adequate Design concept seems to be really paying off at du Pont.

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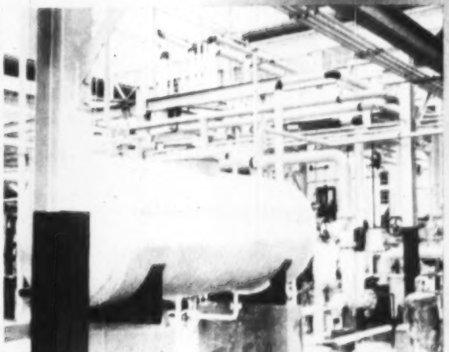

Installation of aluminum piping for handling ammonium nitrate.

...a three-way saving in your piping dollars

When you specify TUBE-TURN* products, you are sure of getting the exact fittings for your job because the Tube Turns' line is the world's most complete . . . *you save engineering time.* Your welders can work faster because fittings are completely identified and perfectly uniform . . . *you save construction time.* You can buy all your fittings with one order from your nearby Tube Turns' Distributor . . . *you save purchasing time.* Are *you* getting these savings in piping costs?

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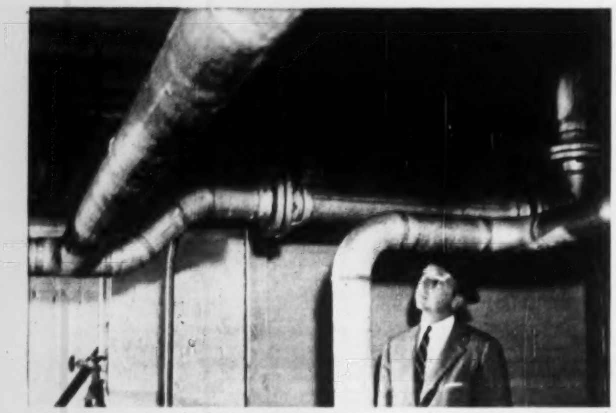
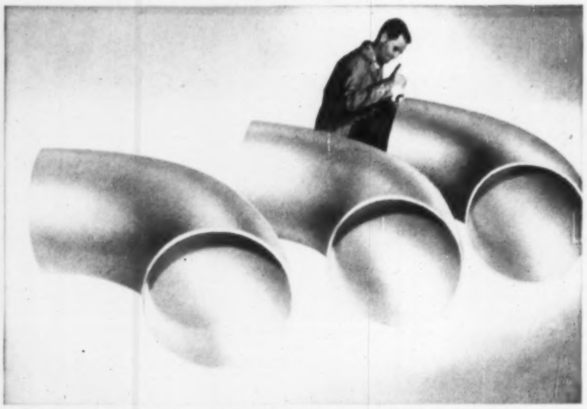


LIQUID SUGAR. Part of welded-aluminum piping system for processing of liquid sugar. When you specify TUBE-TURN* products, you can count on getting the right type, size, schedule and material for every piping service. Saves engineering manhours.



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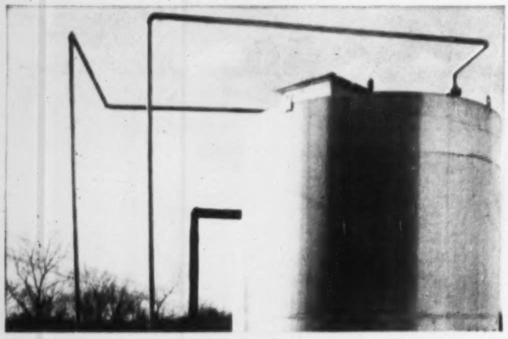
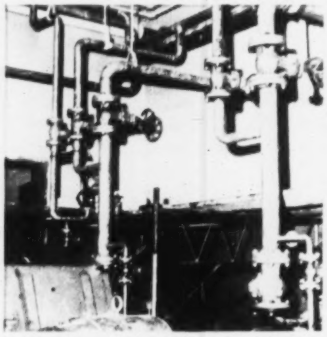
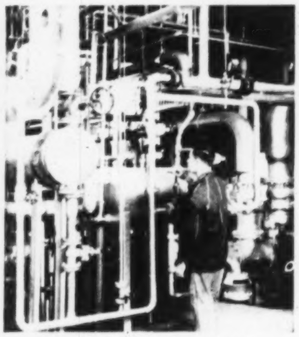


OLEIC ACID. These welded aluminum lines for oleic acid storage show how this strong but lightweight construction can be utilized for corrosive service. Your nearby Tube Turns' Distributor can give you complete-line service promptly . . . to help you save purchasing time.



REFINERY CATALYST is handled by this aluminum piping, equipped with TUBE-TURN welding fittings and flanges. Uniformity of TUBE-TURN products saves construction manhours



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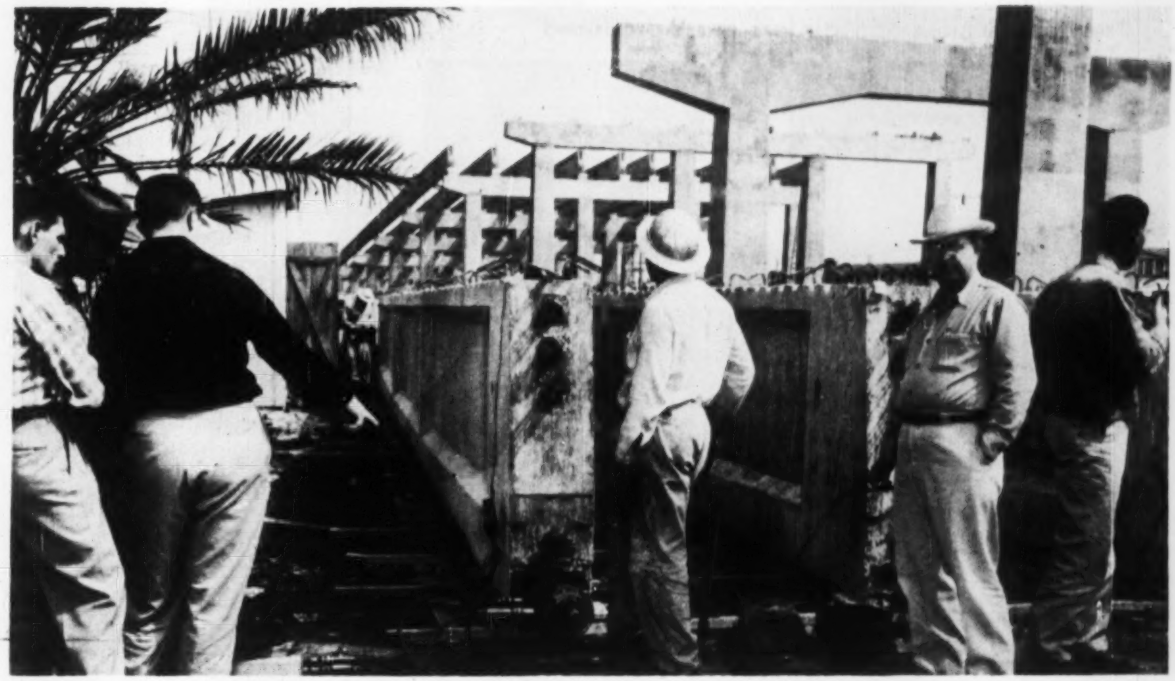


Assembly-line fabrication of girders and piles speeds . . .

Prestressing on Corpus Christi's Bridge

Two trends in prestressed concrete are the extension of the process to both foundations and superstructure and the placing of more emphasis on assembly line methods of mass production. Both these trends are readily apparent in the concrete spans of the approaches to the new high level steel cantilever bridge being built over the ship channel at Corpus Christi, Tex.

All piles on the job are pretensioned, and a total of 370 girders in 37 spans are post-tensioned.

When completed in the spring of 1959, the $9 million bridge will fill two basic transportation needs. Its twin roadways will carry six lanes of traffic over the ship channel, while its 620 ft cantilever span will permit enlarging the channel from its present 87 ft width to 400 ft. The three-span (311-620-311 ft) cantilever truss unit with suspended tied arch will provide a 140 ft navigation clearance over a 300 ft width of the ship channel.

The new bridge will replace an old single-leaf bascule built in 1926 which carries a single-track railroad and two-lane U. S. Highway 181 leading to San Antonio. Traffic over the old bridge has averaged 20,000 cars per day for several years. And mile-long bottlenecks during rush hours indicate that movement of traffic has nearly reached saturation.

The 5,820 ft long bridge will carry two 36 ft roadways, separated by a 4 ft median and flanked by 3 ft emergency walkways, for a total width of 82 ft. It will contain a total of 57 spans, on two main piers, 54 interior bents and two abutments—all supported on prestressed concrete piles. It is designed for a 110 mph wind, and an H20-S16 live loading according to the AASHO specifications.

The south approach includes seven 40 ft and eleven 60 ft prestressed concrete girder spans; also two 90 ft and six 151 ft plate girder spans; and one 272 ft deck truss span.

The north approach contains four 70 ft, nine 60 ft, and six 40 ft prestressed concrete girder spans; also a 272 ft truss span; four 160 ft and three 100 ft plate girder spans.

• **Major contracts**—The bridge is being built under four major contracts. Cage Bros. of San Antonio, Texas, holds a $1.4 million contract for the 37 prestressed concrete girder spans and their substructures. This contract is 80% complete.

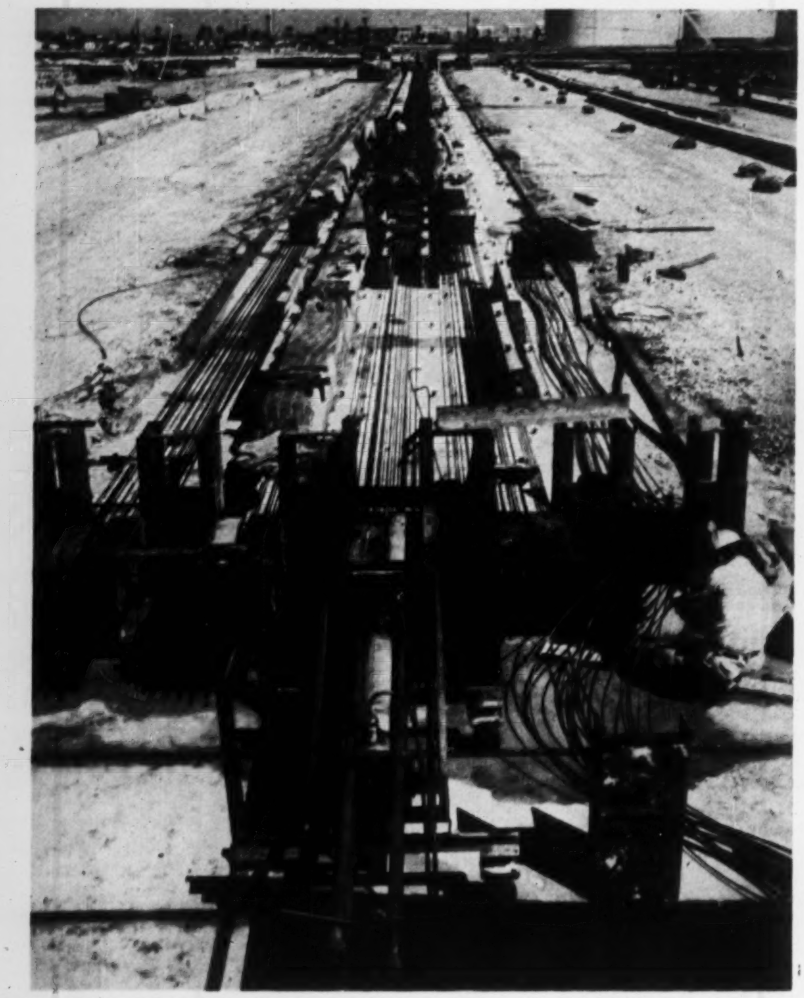
Guy H. James Construction Co., Oklahoma City, has a $1.1 million contract for the two main piers on the banks of the ship channel, and 17 concrete bents supporting the steel plate girder and truss spans. This contract is nearly 50% complete. Both contracts were awarded last year (ENR Dec. 20, 1956, p. 61).

Early this year a $3.5 million contract was awarded the American Bridge Division of U. S. Steel Corp. for the 1,790 ft of steel truss spans including the cantilever unit but excluding the concrete deck (ENR Mar. 14, 1957, p. 88).

J. A. Raines, Muskogee, Okla., was awarded a $2.0 million contract for the 2,030 ft of steel plate girder spans complete with roadway deck. Erection of the plate girders should begin next February. Raines' contract also includes the 1,790 ft of roadway deck for the truss spans.

A fifth contract, covering the entire handrail for the 5,820 ft bridge, has not yet been awarded.

The 370 concrete girders in Cage's contract totaled 20,000 lin ft or 3¾ miles, in length. Forty of the girders are nominal 70 ft c-c bearing; 200 are 60 ft; and 130 are 40 ft. The contract also included casting and driving 49,500 ft of concrete piles, 17 in. square and pierced with an 8 in. dia hole. In addition, Cage subcontracted the casting of the 70,500 ft of piles required under Guy James' contract, making a total of 120,000 lin ft or nearly 23 miles. The



MASS PRODUCTION of pretensioned piles, with a total length of 23 miles, was accomplished for the Corpus Christi bridge on a 5 line, 500 ft long casting bed.

piles weigh 250 lb per lin ft and range in length from 42 to 87 ft.

Because of the sizable quantity of both piles and girders, two casting areas were established, one at the bridge site for the 60 ft and 70 ft girders, and the other a short distance away for the 40 ft girders and the piles.

• Pretensioned piles—Each pile was pretensioned with sixteen $\frac{3}{8}$-in., 7-wire cables. Required to have a minimum ultimate strength of 20,000 lb, each cable was subjected to a 13,000 lb pull or 167,000 psi.

For casting the piles a reinforced concrete bed 500 ft long and 16 ft wide was constructed. Able to accommodate the manufacture of five lines of piles, each 493 long, the bed consisted of an 8 in. slab with longitudinal ribs on the under side and massive concrete abutments at each end. At one end were the supply spools of stressing cables, at the other the hydraulic equipment for tensioning the piles.

The contractor made his own side forms for the piles out of 10 ga steel plate, welded into sections that were bolted together for easy removal. The side forms were held in place by anchor bolts in the concrete bed, spaced 4 ft and 6 ft c-c.

Using this bed and form setup pile manufacture proceeded as follows:

A tractor with drawbar attachment pulled four stressing cables at a time the full length of the bed, repeating the operation until all 16 cables had been strung between the supply reels and the tensioning jacks. During this stringing the cables were also threaded through the spiral hooping required as reinforcing for the piles. Since about 1,200 turns were required for a 493 ft length of pile, 600 turns were bunched together at each end of the bed, and after the cables were in place a jumbo-size buttonhook, developed by the contractor, was used to spread the hooping to its proper spacing.

Locked securely in stand-vises (conical-shaped, three-piece chucks) as they passed through a 2 in. steel plate at the supply end of the casting bed, the cables were given an initial pull of 1,000 lb—using a "come-along" hitch and a dynamometer—to straighten the wires from end to end. Then with the "pull" end of the cables fastened to the hydraulic jacking machine, the load on each cable was increased to 5,000 lb. Under this tension the cables were held in straight, parallel lines, yet could be spread apart for inserting the tube for forming the 8 in. dia hole extending lengthwise along the axis of the piles.

Special measures were taken to keep these tubes in true position during both placing and vibrating the concrete. To do this the contractor used a small pipe fitted with a threaded insert projecting from the down end, which was screwed into the wall of the tube.

The upper end of the pipe was enclosed in a sleeve that was welded to an angle-tie across the top of the forms. A steel pin locked the pipe and sleeve together. These anchoring devices were arranged in pairs to prevent movement sideways as well as vertically. They were spaced 5 ft c-c.

With the tubes in place, the final load was applied to all 16 cables at one time with the 150 ton hydraulic jack.

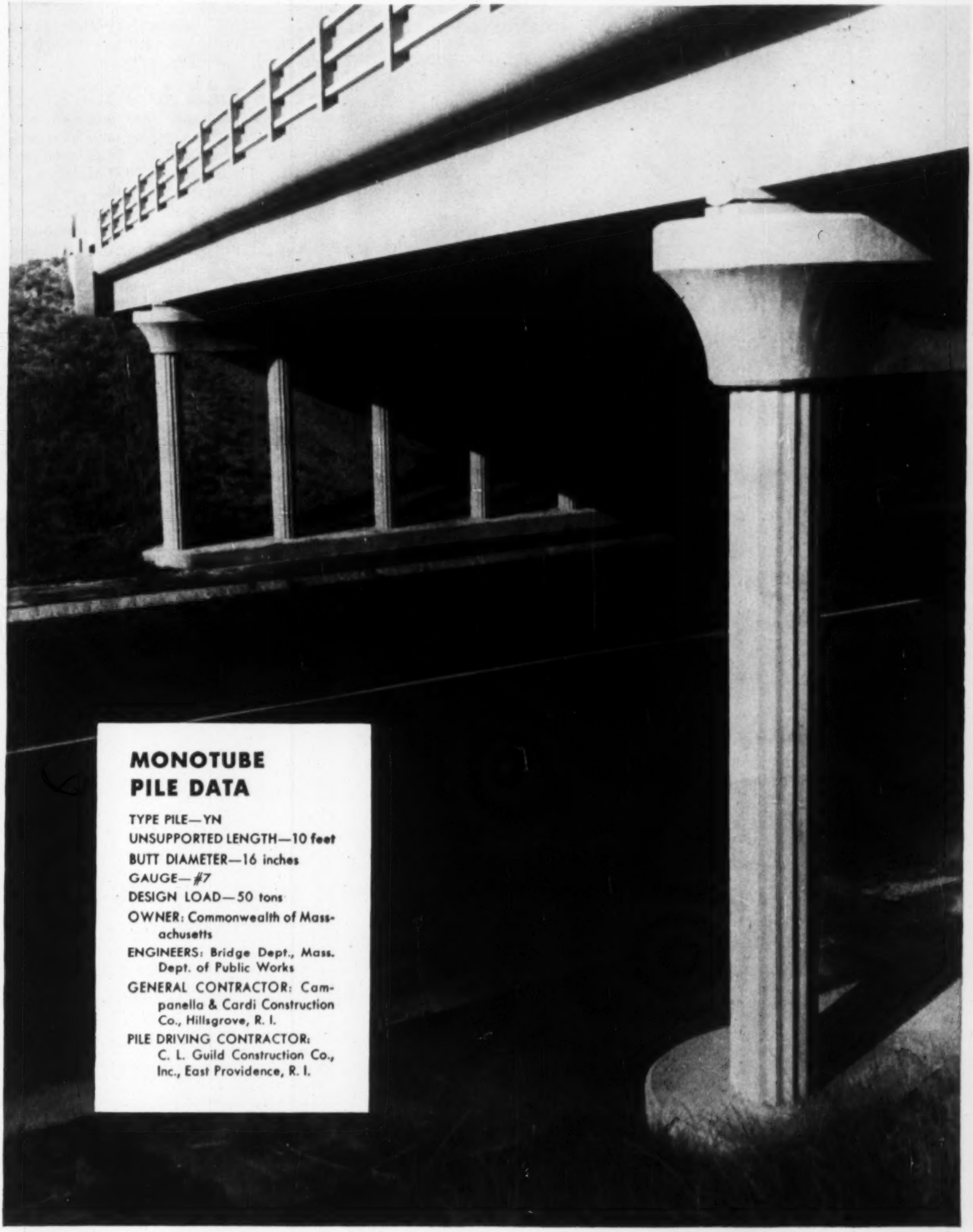
The length of each pile section was marked on the bed, and $\frac{3}{16}$ in. sectional steel plate headers were spotted at the pile ends. These headers had 16 holes to permit passage of the cables through them. The spiral reinforcement was then distributed for its designed spacing, and wired to the cables.

Next step was to set the side forms in place over the anchor bolts and install the angle-and-pipe device that held the top of the forms 17 in. apart and also held the tube in true position for forming the 8 in. dia hole from end to end of each pile.

• Concreting the piles—Premixed concrete was delivered to the job in transit-mix trucks and chuted into the forms. The 17 in. sq piles were concreted in two lifts, using a pair of internal vibrators to spread the concrete and prevent honeycomb.

Each pair of pipe pins holding the 8 in. tube in place was removed as soon as the second lift of concrete had been placed and vibrated at that location. Final step was to float the exposed face of pile flush with the top of the side forms.

The metal side forms were stripp after a minimum of 3 hr, and t



MONOTUBE PILE DATA

TYPE PILE—YN
UNSUPPORTED LENGTH—10 feet
BUTT DIAMETER—16 inches
GAUGE—#7
DESIGN LOAD—50 tons
OWNER: Commonwealth of Massachusetts
ENGINEERS: Bridge Dept., Mass. Dept. of Public Works
GENERAL CONTRACTOR: Campanella & Cardi Construction Co., Hillsgrove, R. I.
PILE DRIVING CONTRACTOR: C. L. Guild Construction Co., Inc., East Providence, R. I.

STRENGTH *plus* VERSATILITY with Monotube piles . . . a perfect combination for this bridge on the Mid-Cape Highway, Dennis, Mass. *Acting as columns*, as well as foundations, Monotube steel piles provide necessary strength, eliminate column form-work and add to architectural beauty.
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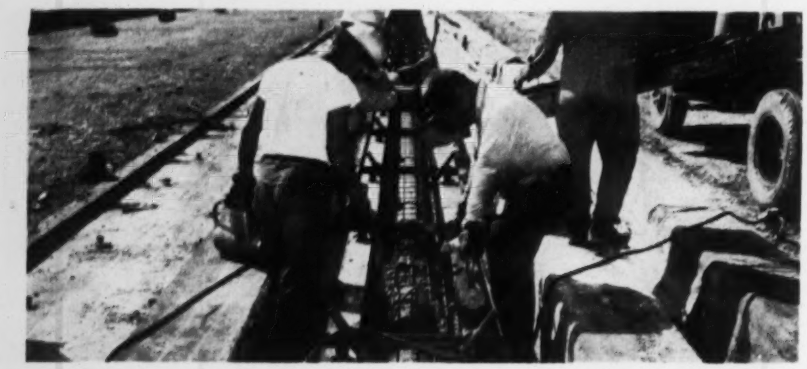
UNION METAL

Monotube Foundation Piles

. . . Assembly-line methods turn out prestressed members

PILE FORM receives tube for making 8 in. dia hole in piles, spiral hoops and stressed tendons in initial fabrication steps.



CONCRETE was chuted into the pile form from a transit-mix truck and consolidated with internal vibrators, thus embedding the stressed cables.

FLOATED FLUSH with the top of the 17 in. high pile form, the concrete was then left to set. Later, embedded tendons were released from the anchorage to prestress the piles.

piles covered with cotton mat and sprinkled with water. Piles were cured for a minimum of 10 days before being driven.

Under normal conditions the contractor cast an entire 493 ft line of piles in a 10 hr day, using a 20 man crew. Best production for a 6-day week was 2,900 lin ft of the 17 in. sq piles.

Lifting hooks were embedded in the piles at the fifth-point from each end, for a two point pick-up in handling them. In the casting yard and for delivery to the bridge site they were handled by a four-wheel straddle carrier with a special lifting frame. At the bridge site they were handled by a pair of long boom cranes.

The piles were driven into a tight sand, using single-acting hammers developing 24,000 ft-lb and 30,000 ft-lb of energy. In the early stages a lighter double-acting hammer (19,000 ft-lb) was used, but it wasn't heavy enough to do the job.

• Post-tensioning girders—Mass production and assembly line methods also were used in precasting and post-tensioning the 20,000 lin ft of concrete girders. The 60 ft and 70 ft girders were cast and stressed alongside the piers, where working space was at a premium.

Flexible metal tubes to accommodate the 0.25 in. dia high tensile stressing wires were buried in the concrete as it was placed in the forms. The 40 ft girders were stressed with four 12-wire units; the 60 ft spans with four 12-wire and two 10-wire units; and the 70 ft girders with seven 12-wire units.

Casting the 3¾ miles of concrete girders was such a big production job that several sets of forms were needed. The contractor made five sets for the 200 sixty-foot girders, six sets for the 130 forty-foot girders, and two sets for the 40 seventy-foot girders.

Side forms were ¾ in. plywood inside of 2x6 in. vertical studs spaced 15 in. c-c. The bottom form was similar except that the timbers were 2x4's.

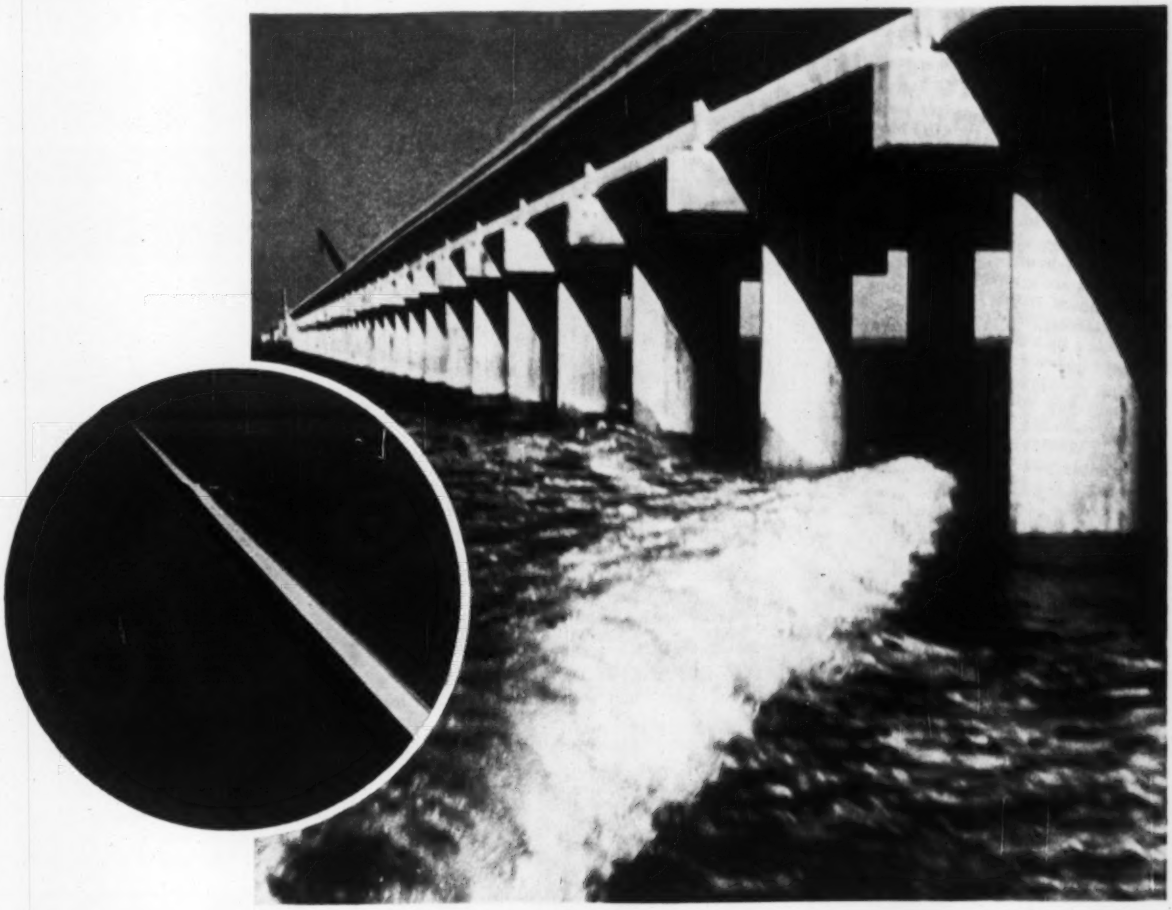
The side forms were held in place at the top with angle-iron locks extending across the top of the girders. Along the bottom they were fastened by screw-type lumber clamps engaging 4x4 in. horizontal kicker beams bearing against the 2x6 studs.

Under favorable curing conditions the side forms were stripped two days after placing the concrete.

Concrete for the girders was delivered from a nearby batching plant by transit-mix truck, chuted into the forms and vibrated. The mix was designed for minimum compressive strengths of 3,500 psi at 5 days and 4,500 psi at 14 days. The gravel was shipped 90 miles by rail, and the sand was hauled 18 miles by truck. Portland cement was obtained locally.

• Stressing the girders—After the girders had been cured for five days a partial stress was applied to permit their being moved from the casting beds to the erection area. Here, a full stress was applied when the concrete was 14 days old, following which they were ready to be set in place atop the piers by a pair of truck cranes.

The hydraulic jacks were driven by a small gasoline powered engine. Normally, the 10-wire or 12-wire units were locked at one end, and stressed with the jacks attached to the other end. The two bottom units of the 60 ft girders, however, were located side by side, and as a consequence were stressed simultaneously by jacks at opposite ends to prevent warping the bottom portion of the girder.



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Ideal's plants at Baton Rouge, Mobile, and Houston, and cement terminal at New Orleans just across Lake Pontchartrain from the construction site assured a uniform flow of cement to keep the project going regardless of the severe cement shortage.

High praise is due the contractor—Louisiana Bridge Company, a joint venture of Brown & Root, Inc. of Houston, and T. L. James & Company, Inc. of Ruston, Louisiana—and Palmer and Baker, Inc. of Mobile, consulting engineers.

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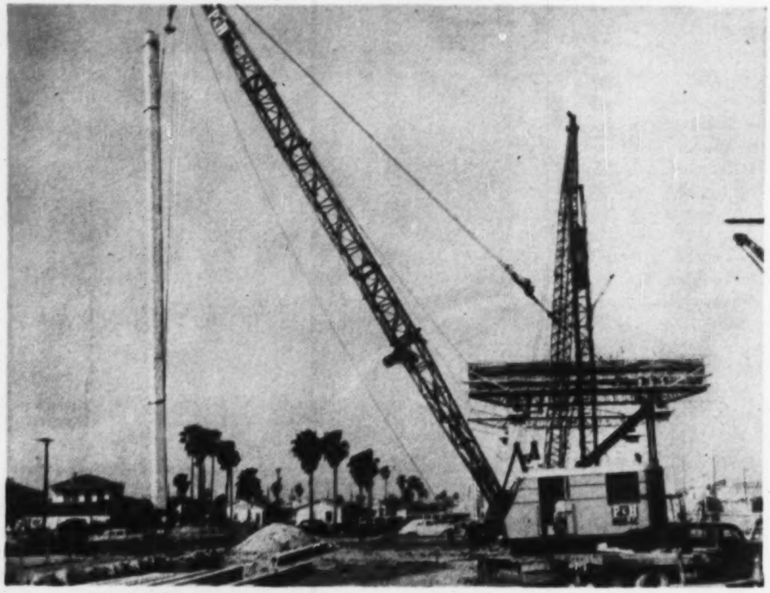

PILE-DRIVING TEAMWORK—A crawler crane with 90 ft boom brings 65 ft, 8 ton pile to the site, where a second crane places leads and sets hammer for driving.

PRESTRESSING of girder was first checked by measuring tendon elongation.

DOUBLE CHECK was made by reading jack pressure gage.

For example, to induce the proper amount of permanent post-tensioning stress in a 40 ft girder required a $2\frac{7}{8}$ in. elongation of the wires. For the 60 ft girders this elongation was $4\frac{3}{8}$ in., and for the 70 ft spans it was 5 in.

In stressing one of the 12-wire units a total pull of 113,000 lb was applied by the jacks, equivalent to a unit stress of 192,000 psi in the wires. This was a slight overload and was held for about 2 min to give the stressing wires a chance to adjust to the elongation. The jacks were then backed off slightly to give a total permanent load of 99,000 lb for the 12 wires.

The final operation was to lock the wires permanently in special chucks and saw off the ends. At peak operations, a four-man crew post-tensioned five girders per day.

• **Men in charge**—The $9 million project is being built under the supervision of Lewis H. White, project engineer, Texas State Highway Dept. Ross Anglin, Sr., is general superintendent for Cage Bros.; Horace Ivy is construction superintendent and Ross Anglin, Jr. is civil engineer in direct charge of the prestressing work. Roy Banning is project manager for Guy H. James Construction Co., and Ted Spinks is pile-driving superintendent.

All work on the project is scheduled for traffic use in 1959.

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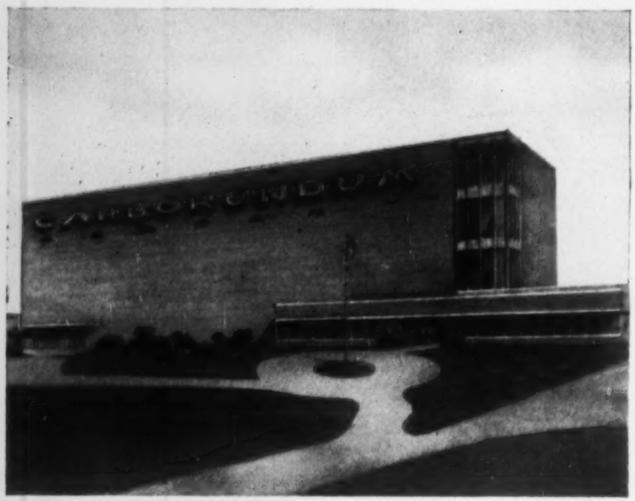
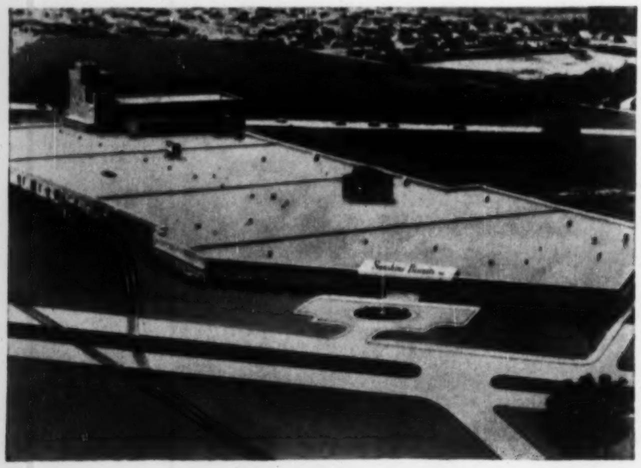
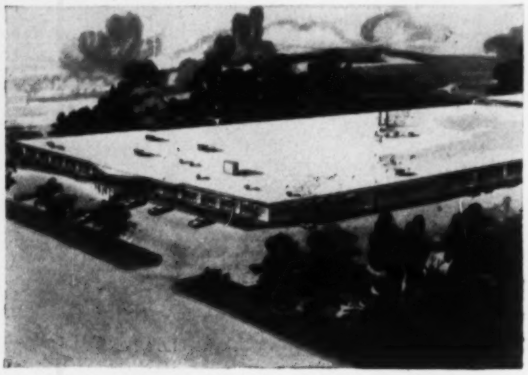


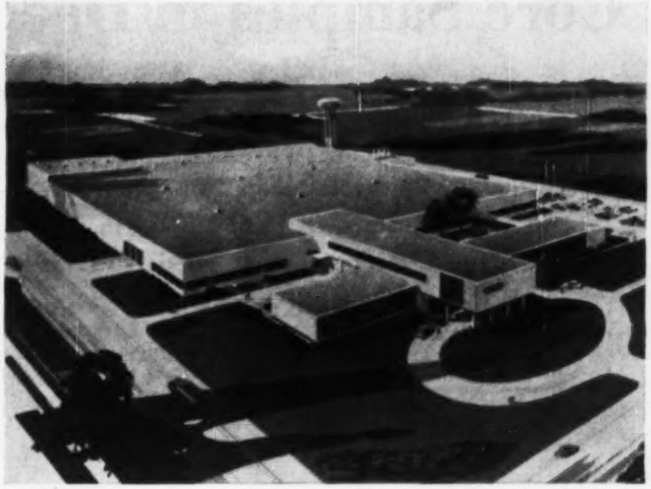
THE CARBORUNDUM COMPANY. Resinoid abrasive wheels are manufactured in this Logan, Ohio, plant. Plant designed by Carborundum Company engineers.

SUNSHINE BISCUITS, INC. This Columbus, Ga., plant manufactures full line of cookies and crackers for the Southeast territory. Designed by company's architectural engineers.

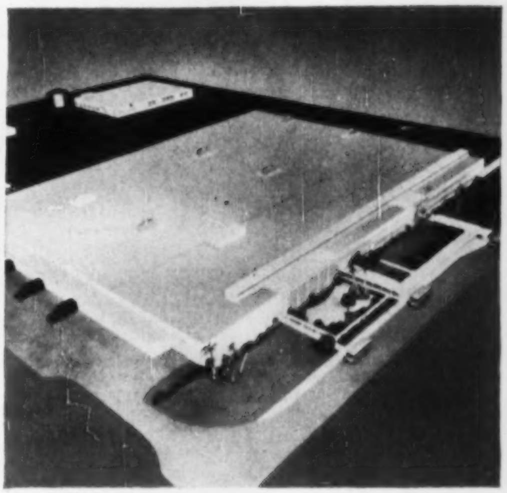


RADIANT MANUFACTURING CORP. Morton Grove, Ill., executive and manufacturing headquarters for projection screens. Designed and built by Klefstad Engineering Co., Chicago.





BRUNING **CHARLES BRUNING COMPANY, INC.,** Mt. Prospect, Ill. Manufacturing diazotype reproduction machines and sensitized papers—includes headquarters offices and warehouse. Architect: A. Epstein & Sons, Inc., Chicago, Ill.



MARTIN ORLANDO **THE GLENN L. MARTIN CO.** Advanced guided missile and electronics plant, Orlando, Fla. Architects & Engineers: Connell, Pierce, Garland & Freedman, Miami, Fla.

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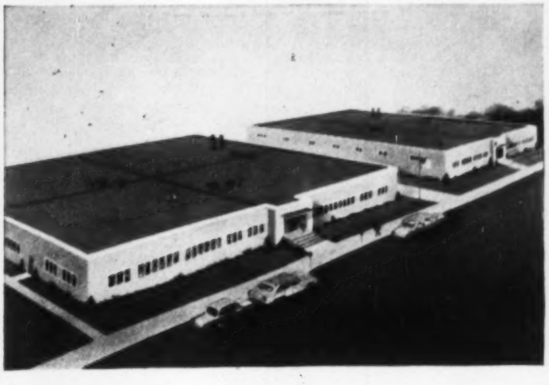
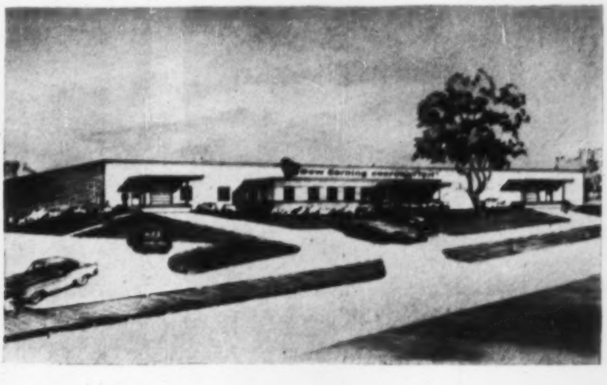
nylic **NEW YORK LIFE INSURANCE COMPANY.** Records, storage and service building, New Providence, N. J. Architects: Frank Grad & Sons, Newark, N J.



DOW CORNING SILICONES **DOW CORNING CORPORATION.** Manufacturing facilities for Silicone Specialties Division, Greensboro, N. C. Architect: Charles C. Hartman of Greensboro, N. C.



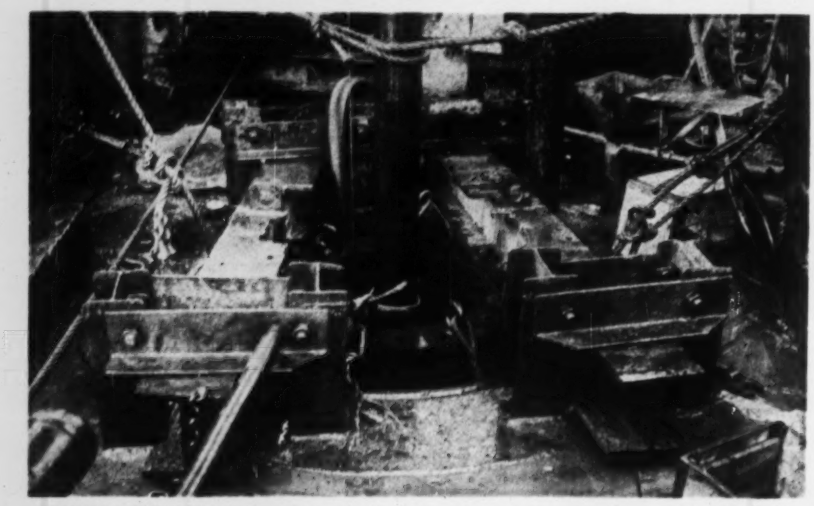
Floating Rig Takes Core Samples in Deep,

Undisturbed samples from 326 ft deep Passamaquoddy Bay were taken from completely equipped barge towed 3,000 miles to site. A 25 ft tidal range and 8 ft per sec currents made the drilling still more difficult.

Robert L. Perkins
Vice-president
McClelland Engineers, Inc.,
Houston, Texas

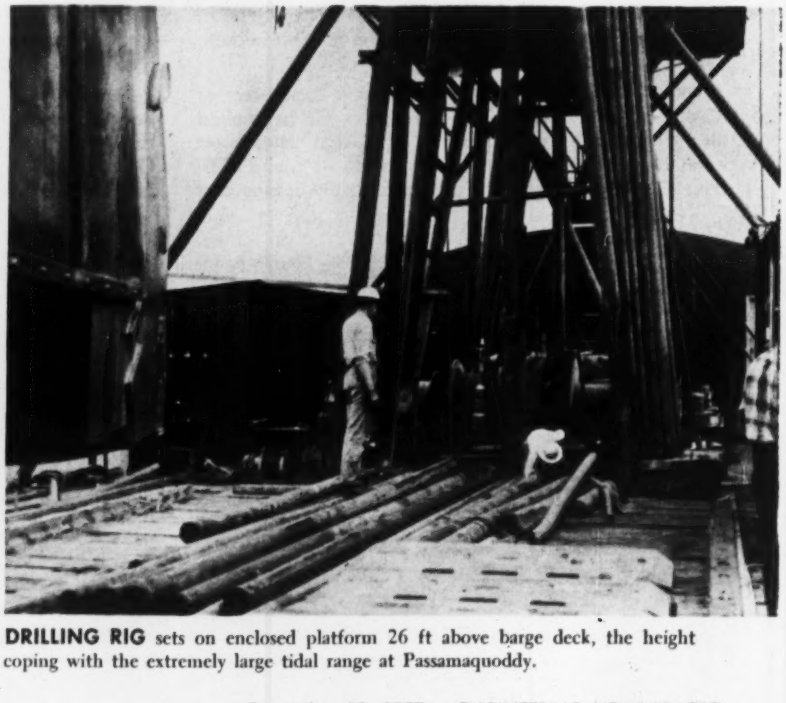
One of the most unusual foundation exploration projects ever attempted has been completed successfully. Undisturbed samples of marine clay lying as much as 326 ft below the surface of swift-flowing Passamaquoddy Bay were required. A daring scheme, accomplished entirely from a floating barge, provided them in record time.

The borings were made in connection with the Corps of Engineers study of the proposed Passamaquoddy Tidal Power Project (ENR Feb. 9, 1956, p. 22). They revealed foundation conditions beneath the several dams that would be required to harness the famous high tides of the Bay of Fundy region, located at the eastern end of the U. S.-Canada border.



AT WELL THROUGH BARGE, conductor pipe is connected to barge deck with casing pipe rising through it. The conductor pipe was guyed to the barge (see drawing).

SPECIAL PISTON SAMPLER provides 5 in. dia undisturbed mud cores.



DRILLING RIG sets on enclosed platform 26 ft above barge deck, the height coping with the extremely large tidal range at Passamaquoddy.

Swift Water

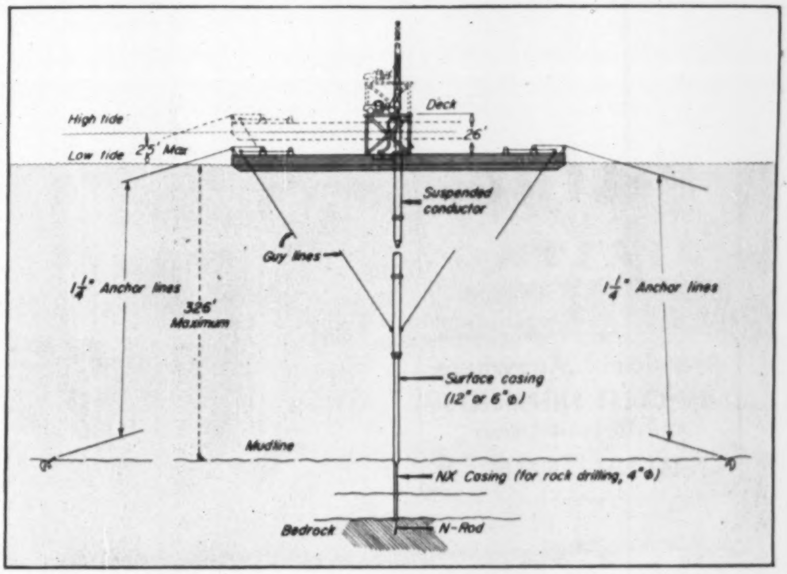
Substantial work already had been done in the area by the Corps in 1935 and 1936, when 26 borings were made in water up to 110 ft deep (ENR Oct. 14, 1937, vol. p. 635). For its present study, Army engineers needed 21 additional borings in areas of deeper water not covered in the previous investigation. Water depths up to 326 ft, coupled with twice-daily tide changes of as much as 25 ft and currents of 8 ft per sec, presented a formidable environment for the work. The main part of the task was to secure the best possible undisturbed samples of the soft marine clay known to cover much of the bay bottom. Split-spoon sampling of coarse-grained deposits and diamond core drilling of the underlying bedrock were also required.

Bids for the work were received in January of this year from only one contractor, Brown & Root Marine Operators, Inc. of Houston, Tex. The price of $525,493 was almost $150,000 under the government's estimate.

Brown & Root, engaging McClelland Engineers, Inc., as consultant, assembled all required equipment on a 240 x 45 ft steel barge in the B&R shipyard in Houston. The fully equipped barge was towed the 3,000 miles to the project site by a 1,200 hp tug. The barge arrived at Passamaquoddy on May 6; eleven weeks later and five months ahead of the contract time limit, the borings were completed.

• Oilwell experience utilized—The floating procedure employed by the contractors was based on developments by McClelland Engineers for foundation investigations of oilwell drilling structures in the Gulf of Mexico. Significant new techniques were needed, however, to cope with the swift water and the widely diverging tides at Passamaquoddy. To hold the drill barges securely on location, four heavy anchors were set 1,200 ft out from the corners of the barge and connected to it with $1\frac{1}{4}$ in steel-core anchor cables. It was found that the slope of these lines was such that adjustment of line length during tide changes was seldom necessary.

Drilling operations were conducted through a 5 ft dia well cut vertically through the center of the barge. A drilling rig was mounted on a 20x32 ft enclosed platform 26 ft above the top of the barge well. Height of the drill platform above the barge deck was planned so that the drill casing set with its top just above the barge deck at high tide would be just below the underside of the drill platform at low tide, as shown in the sketch.



High tide
Low tide
25' Max
Deck
26'
Suspended conductor
Guy lines
$1\frac{1}{4}$" Anchor lines
326' Maximum
$1\frac{1}{4}$" Anchor lines
Surface casing (12" or 6"ɸ)
Mudline
NX Casing (for rock drilling, 4"ɸ)
Bedrock
N-Rod

DRILL PIPE is shielded from drag of swift currents by large diameter conductor pipe guyed to barge. NX casing was employed for diamond drilling in rock.

Drilling water flowing from the top of the casing was carried by a flexible hose to a tank at barge level. From there, a booster pump transferred the fluid to another tank at the drill platform. The rig pump picked up drilling fluid from this upper tank and recirculated it through the drill pipe.

• Water depth greatest problem—Supporting drill pipe and casing in swiftly moving water was the greatest single problem facing the contractor. Design analyses indicated that deflections and stresses would be intolerable in an unsupported pipe of any size up to several feet in diameter. To overcome this, a large-diameter flanged conductor pipe was used to shield the drill pipe and casing for most of the water depth.

Working through the barge well, a conductor length sufficient to cope with various water depths was assembled in sections. The conductor was suspended from the barge by a connection to the barge deck at its top end and was supported near its bottom end by steel guy cables. Surface casing, 12 in. or 6 in. in dia depending on the exposed water depth below the conductor, was set through the conductor to the bottom of the water. In overburden materials, the boring was usually uncased and was stabilized by drilling mud. Subsequently, to facilitate diamond core drilling, strings of 4 in. pipe, or NX casing, were inserted through the 6 in. surface casing and advanced to the top of bedrock in accordance with conventional drilling practices.

• Tide range complicates drilling—An interesting facet of the floating operation was how the variable water surface complicated control of the boring depth while drilling was in progress.

The usual procedure of measuring hole depth by the length of drill pipe below drilling deck was totally inadequate, since the rig itself was constantly moving up or down with respect to the ground surface. Drillers quickly discovered that advancement of the drill pipe with respect to the deck when diamond core drilling was no sure sign of drilling progress, since the tide coming in could produce the same visual effect. Conversely, they found that it was not unusual for the drill pipe to apparently "back up" even while drilling ahead satisfactorily, due to tide going out faster than the drill bit was penetrating.

To control drilling depth, a 300 lb deadweight was connected to a $\frac{3}{16}$ in. stainless steel cable and was dropped through the conductor pipe to the bay bottom. The upper end of the cable was passed over a pulley located at the drill deck, and was then connected to a counterweight system which kept the cable taut at all times. The cable length was marked in increments, and constant readings were taken to inform the driller of his exact position at all times.

Materials encountered in the borings included soft marine clays, gravelly sands with boulders, and various bedrock formations. The soft marine clay was an important target of the investigation, and the Corps required the best possible undisturbed samples. Five inch diameter fixed-piston samples, taken continuously to a penetration of 15 ft and at 5 ft intervals below that, were specified. The sampler employed was a hydraulic piston sampler designed

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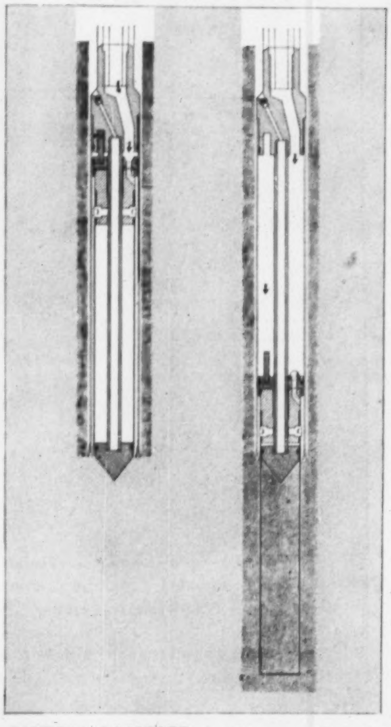
. . . 'Quoddy borings



PISTON SAMPLER is shown with sample tube retracted while drilling ahead (left). After steel ball closes water port, tube is forced into soil by hydraulic pressure.

by McClelland and patterned after the earlier Osterberg sampler (ENR Apr. 24, 1952, p. 77).

• Special sampler—A unique feature of the McClelland sampler permits its use in cleaning out the hole where the last sample was taken and in advancing the boring to the next sampling position. This is accomplished by rotating the sampler and simultaneously pumping drilling fluid through ports in the sampler head connecting to the annulus between the inner and outer barrels.

The fixed-piston has a cone shaped bottom which serves as a plug bit. After the sampler is at grade, closing the water ports by dropping a steel ball causes the sample tube to extend when pumping is resumed. The dual function of this sampler proved well suited to the deep holes and the formations encountered, and contributed significantly to the rapid progress of the work. Samples were delivered daily to a testing laboratory in Eastport, Me., operated by Greer Engineering Associates, Inc., of Montclair, N. J.

Occasional minor dragging of the anchors at some difficult locations caused sufficient barge movement to break the smaller pipe sizes where they emerged below the conductor. Time and material losses in such instances were nominal and were accepted by the contractor as part of the normal expense of working under such extreme conditions.

The only serious difficulty encountered was at a boring in 260 ft of water adjacent to a whirlpool caused by the confluence of two tidal streams. The system of guys that had been provided for lateral support of the conductor pipe was designed for linear water currents parallel to the long axis of the barge. In the vicinity of the whirlpool, it was impossible to orient the barge with respect to current as intended because the direction of the water current was found to be highly variable. The initial setup at this location was made during a period of maximum tides, and strong currents running with a transverse vector to the barge proved sufficient to completely break the heavy conductor pipe. The boring was satisfactorily completed, however, when work was resumed at a lower tide stage.

• Quantities and equipment—At the 21 boring locations, a total of 1,016 ft of overburden materials and 419 ft of rock were drilled. Sampling of the overburden included 116 undisturbed samples and 70 samples of other types. Water depths ranged from 12 ft at low tide at the shallowest location to 326 ft at high tide at the deepest locations. Eighteen men kept the barge in continuous two-shift operation, as compared to the 75 men used to maintain the three-shift operation of the 'Quoddy drill boat working in shallower water in 1935.

Principal equipment items on the drilling barge, all diesel powered, included a drilling rig, a crane, dual 60 kw generators, welding machines, a 210 cfm air compressor, a four drum anchor winch and two auxiliary winches. The barge contained complete living facilities for 30 crew members. An additional service vessel, a 250 hp twin-screw diesel crew boat, rode the main barge "piggyback" on the trip from Houston.

Contracting officer for the New England Division, Corps of Engineers, was K. A. Hinton, in charge of the Passamaquoddy survey Field Office. The project was under the technical control of W. R. Floyd, Chief of the Foundations and Materials Branch of the Passamaquoddy Survey Division. For Brown & Root Marine Operators, Inc., R. W. Jenkins had charge of preparing the floating plant for the project and was also project superintendent during the initial part of the work. He was later succeeded as superintendent by C. O. Addison. The author had charge of all drilling operations and was responsible for planning many of the operational procedures. Brig. Gen. Alden K. Sibley is New England Division Engineer for the Corps.

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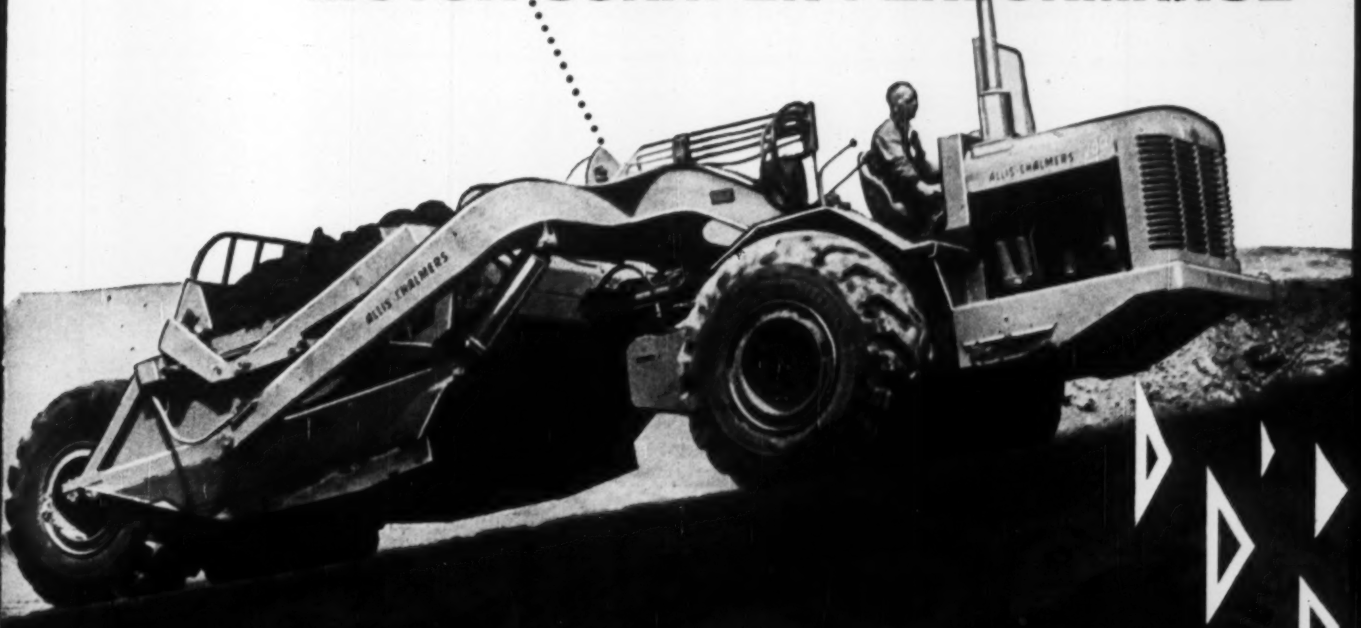
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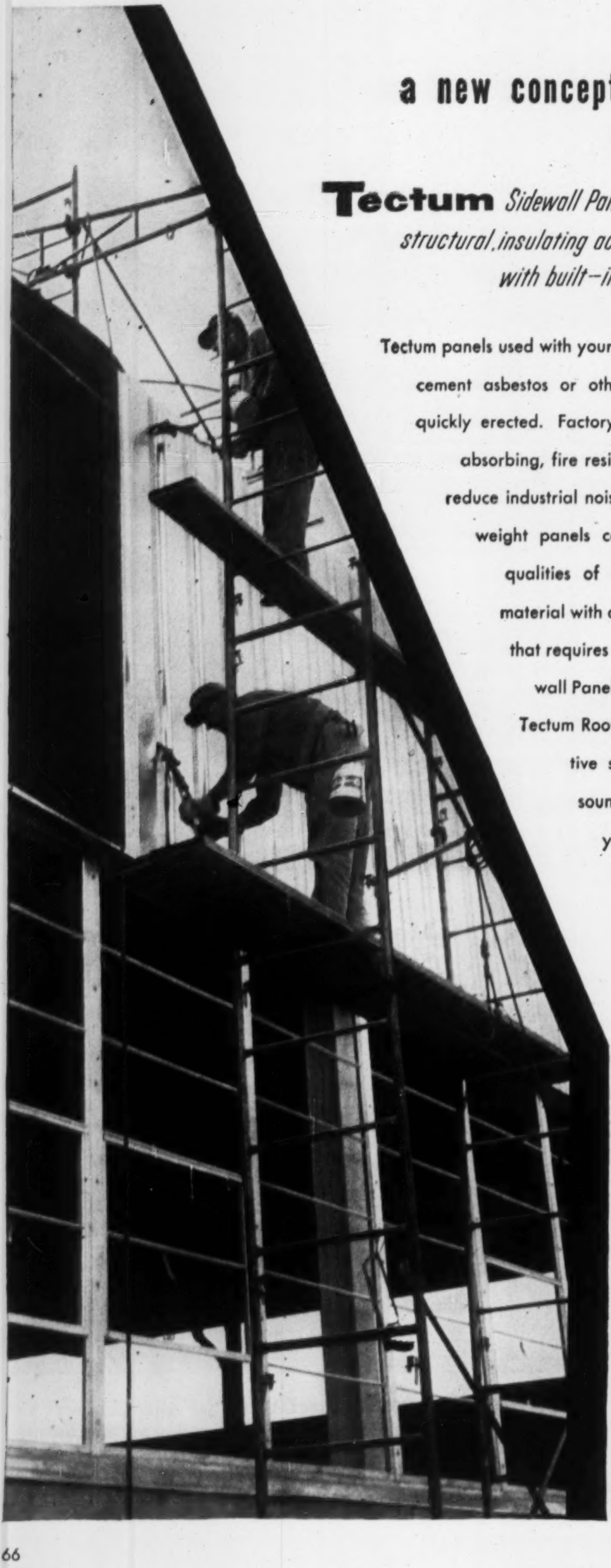

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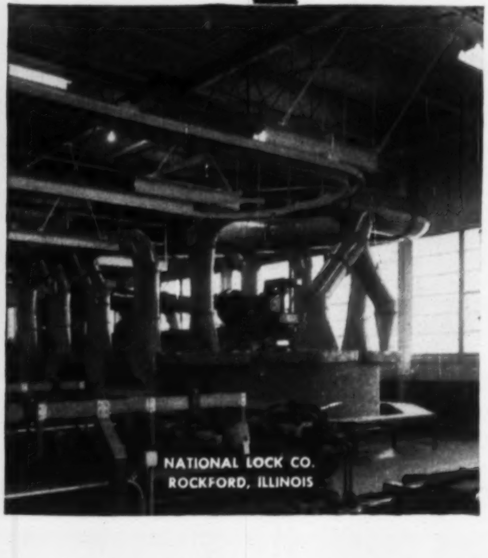

Men and Jobs

C. D. Curran

Specialist to Return To Library of Congress

Charles D. Curran, consulting engineer with offices in Washington, D. C., will go back to the Library of Congress at the beginning of next year, as senior specialist for engineering and public works in the Legislative Reference Service.

Mr. Curran has been in private practice since 1955, when he completed his duties as administrator heading the staff of the task force on water resources and power for the Second Hoover Commission. He will be resuming an old post at the Congressional library, having served in the same position from 1950 to 1953. For 15 months during that period, Mr. Curran was staff director of a sweeping study of federal civil works for a special subcommittee of the House Public Works Committee.

Mr. Curran recently began a one-year term as president of the District of Columbia Society of Professional Engineers.

Gribble Receives Award For Army A-Plant Work

The Legion of Merit for exceptionally meritorious conduct in the performance of outstanding services was presented to Lt. Col. William C. Gribble, Assistant District Engineer for Planning, of the U. S. Army Engineer District, Alaska, in a headquarters ceremony recently. He received the award for performance between 1953 and 1956 when he developed the technical specifications for the design, construction and test operation of the Army Package Power Reactor (ENR July 12, 1956, p. 45), the first full-scale, land-based military nuclear power plant.

In part, the award citation, signed by President Eisenhower, reads:

"Colonel Gribble on his own initiative organized a technical evaluation group that reviewed the long and complex proposals received from industrial firms resulting in securing a lump sum bid for a complete reactor project with a guarantee of performance at a cost substantially below original estimates."

General Carter Sworn In As President of the MRC

Brig. Gen. William A. Carter, Jr., has been sworn in as a member and the president of the Mississippi River Commission, an offce to which he was recently appointed by President Eisenhower. As such, he will direct investigations, design and construction of flood control, navigation and other water resource works in the lower Mississippi River Valley.

General Carter, who also holds the position of Division Engineer, Lower Mississippi Valley Division, Corps of Engineers, comes to this area from Japan where he had been Deputy Chief of Staff for Logistics for the Armed Forces, Far East, and the Eighth Army.

A 1930 graduate of the U. S. Military Academy, General Carter studied three years in the school of Engineering at Mississippi State College, holds a bachelor's degree in civil engineering from the University of California, and is also a graduate of The Engineer School, Ft. Belvoir, Va.

Careers

Government

Col. Carlton M. Clifford has been assigned as South Pacific Division Deputy Engineer, Army Corps of Engineers, under Brig. Gen. William F. Cassidy, Division Engineer.

Bernard F. Kotalik has been assigned to the bridge unit in Harrisburg as a design engineer for the Pennsylvania Highway Department.

Robert Kimley, who has been serving as municipal traffic engineer at Greenboro, N. C., has been appointed advanced planning director for primary roads.

William Ingram of Raleigh has been named advanced planning director for secondary roads in the North Carolina Highway Department.

Lt. Col. William H. H. Mullin has been assigned as assistant District Engineer, North, Alaska District, Corps of Engineers.

B. J. Kirkwood has become a partner in the firm of A. C. Kirkwood & Associates, consulting engineers of Kansas City, Mo.

W. P. Wallace has accepted the position of Head, Department of Civil Engineering, Southwestern Louisiana Institute, Lafayette, La.

Brother Amandus Leo, dean of engineering at Manhattan College, has gone to Tel Aviv at the invitation of the Israeli Government to serve as consultant on a new cultural center in Israel.

Col. Edmund H. Lang has been appointed District Engineer of the U. S. Lakes Survey, Corps of Engineers, with headquarters in Detroit. He relieves **Col. Edward J. Gallagher,** who now is assigned to Fort Leonard Wood in Missouri.

Brig. Gen. William F. Cassidy, Division Engineer, South Pacific Division, Corps of Engineers, is named a member of the Board of Engineers for Rivers and Harbors. He also has been recently elected chairman of the Pacific Southwest Inter-Agency Committee and appointed to membership on the U. S. Committee of the International Commission on Large Dams.

Brig. Gen. Robert G. Lovett (USA ret.) has been appointed manager of the new Kingston, Jamaica, office of Rader and Associates, Miami consulting engineering firm. General Lovett retired from the Corps of Engineers in 1954 and has been with Rader since then.

Col. Walter J. Wells has been assigned as Fort Worth District Engineer, Corps of Engineers, succeeding **Col. Harry O. Fischer** who will assume duties in Alaska.

Associations

Stanley E. Goodwin, A. R. Way and **K. K. Johnston** have been appointed field enginers in the Omaha, Neb., District of the Portland Cement Association.

Howard M. Bixby was appointed field engineer for the National Crushed Stone Association in Washington, D. C.

Sam P. Johnson has been elected first president of the new Florida Prestressed Concrete Association.

Retirements

Edwin F. Koester, city engineer of Wilmington, Del., will retire on Oct. 1. A native of Baltimore, Md., Mr. Koester joined the engineering staff of the Wil-

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mington Street & Sewer Department in 1916, after graduation from Cornell University in 1913 with a civil engineering degree.

Louis H. Wismar of Columbus, Ohio, retired July 1, after 48 years with the Ohio Department of Highways. After graduating from Ohio Northern University, he was elected Wood County engineer and later served as engineer in Sandusky County. He also served as Division Engineer and Chief Engineer of Construction. At the time of his retirement he was rural projects engineer in the Division of Planning and Programing.

Business

Stanley A. Ward, until recently the general manager of the Salt River Power District in Phoenix, Ariz., has joined the staff of Bechtel Corp. in San Francisco as an executive engineer in the power division.

Arden W. Morgan, consulting engineer of Pleasantville, New York, has joined Tippetts-Abbett-McCarthy-Stratton, consulting engineers, of New York, as an Associate. Mr. Morgan will handle heavy industrial engineering and development work, primarily on overseas projects.

A. E. Somerville has been appointed manager of all construction operations for Arthur G. McKee & Co., Cleveland steel plant construction and engineering firm. **R. G. Widman,** construction superintendent, has been named assistant construction manager for the same company.

John A. Tantillo, construction superintendent for the Corbetta Construction Co., Inc., New York, for 11 years has been assigned as project manager of the $18 million military seaport and fuel supply base being built at Rota, Spain, under a joint venture contract by the Corbetta Co., and Construcciones Civiles, S. A. of Spain. Mr. Tantillo was project manager directing the rebuilding of Drydock No. 3 in the Brooklyn Navy Yard.

Robert M. Brown has been appointed district engineer for the Union Pacific Railroad's northwestern district, including Oregon, Washington, Idaho, Montana and Western Wyoming, with headquarters at Portland. He was formerly in the western district as engineer.

Wayne O. Stoughton, steel executive, has been named president of the Wire Reinforcement Institute for the coming year. Mr. Stoughton is manager of sales, Pittsburgh Steel Products —a Division of Pittsburgh Steel Co. **Earl C. Planett** of Downey, California, was named vice-president. Mr. Planett is president and owner of Planett Mfg. Co. of Downey, Calif.

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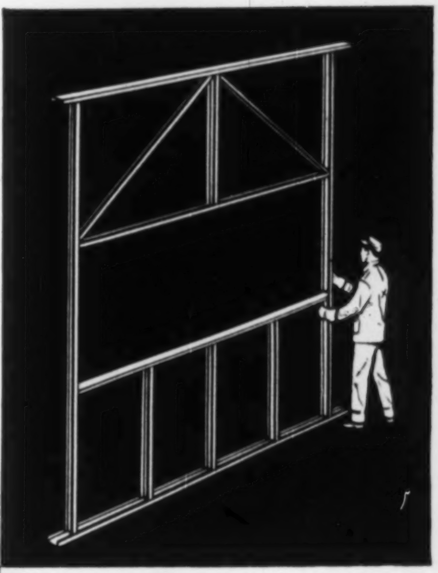

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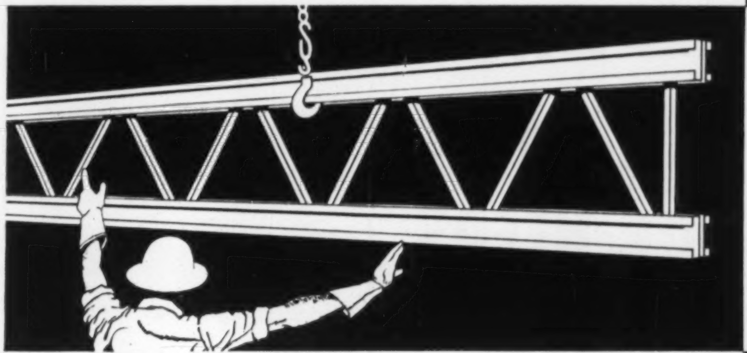

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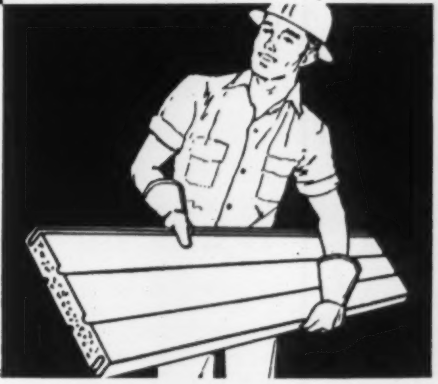

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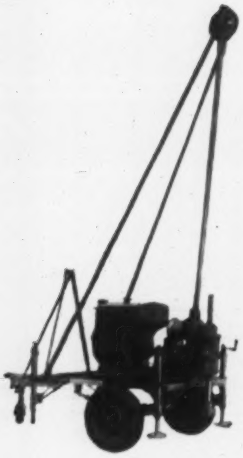

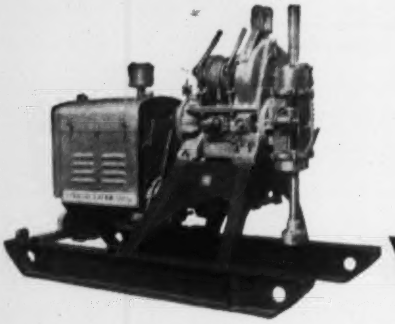

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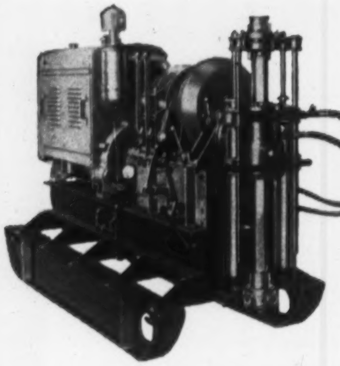

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Obituaries

John S. Rader, 46, field engineer for the Standard Oil Co. of Indiana died August 6 in Elmhurst, Ill. Mr. Rader was a graduate of Kansas State College School of Engineering and served as assistant county engineer of Republic County, Belleville, Kansas, in 1937-38; county engineer at Osborne, Kansas, from 1938-42, and came to Salina in 1942 to become operations engineer during the construction of Smoky Hill Air Force Base and Camp Phillips. In 1944 he was a lieutenant in the Seabees, in charge of a crew for the site preparation for first atomic test on Eniwetok.

Frank Leslie Davis, Sr., 66, civil engineer, died August 10 at Lake Louisa, Que. He entered the Canadian civil service in 1931 and was appointed by the Department of Transport as district airways engineer in 1950. He was a member of the Engineering Institute of Canada and of the Corporation of Professional Engineers of Quebec.

Frank J. McDevitt, 77, president of the Board of Public Service, St. Louis, Mo., died Aug. 10 at St. Louis. He had been a consulting engineer for nearly 40 years and served 16 years as an officer of the St. Louis municipal government. Mr. McDevitt previously had been director of streets and sewers for eight years, during which time he gained national prominence for his invention of a new method of garbarge disposal in which the garbage is finely ground and flushed through sewers into the Missisippi. A 1904 graduate of Lehigh University, Mr. McDevitt joined in forming the Baumes-McDevitt Co. in 1914, which designed and supervised construction of industrial power plants. He became director of streets and sewers in 1933 and president of the public service board in 1949.

Frederick Rackwitz, 51, a retired civil engineer who at one time taught at Stanford University, died Aug. 17 at Haverford, Pa.

Marion D. Ross, 73, one of the five original employees who began work in 1912 with the Kentucky State Highway Department, died August 17. A native of Lexington, Mr. Ross served for 30 years as district highway engineer in the Northern Kentucky district at Covington. Since 1946, he had been advisory engineer and executive secretary of Plantmix Asphalt Industry of Kentucky, Inc. He was a life member of the American Society of Civil Engineers, a member and past president of the Kentucky Society of Professional Engineers.

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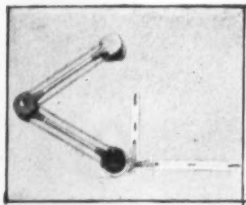

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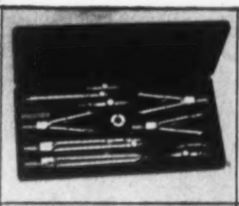

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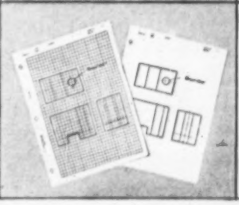

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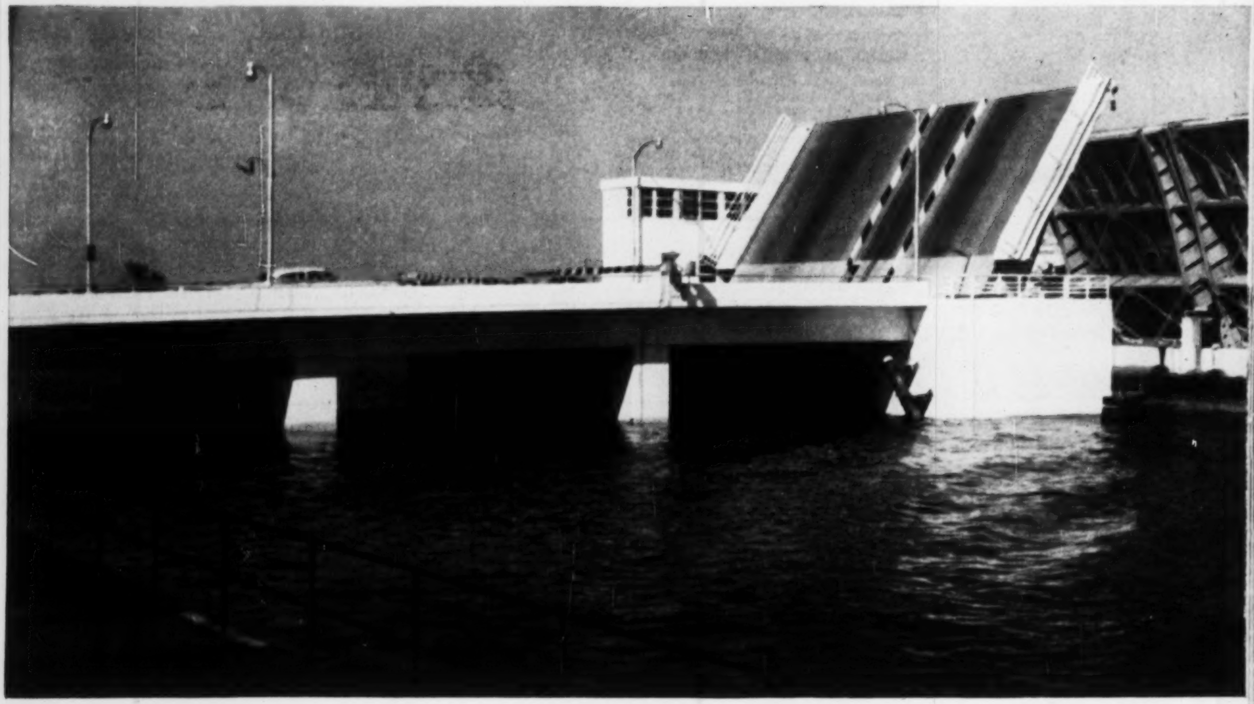
LOW BRIDGE

OPERATING AND MAINTENANCE COSTS WITH WESTINGHOUSE

Westinghouse-powered 63rd Street bridge, Miami, Fla.



A lot of traffic passes through and over the 63rd Street bridge at Miami, Fla. Smooth and rapid operation of the double bascule leaves is a must. Miami also considers it a must to keep operating costs and maintenance at a minimum. Performance and low cost are insured by the all-Westinghouse coordinated electrical system. Power distribution, control system and motors are engineered as a package, to fit the particular requirements of bridge operation. This is an important benefit in the Westinghouse policy of providing specialized know-how to assist bridge planners and contractors.

Consulting engineers: Palmer and Baker, Mobile, Ala. Electrical contractor: Astor Electric Service, Miami, and general contractors: Poston Bridge and Iron Works and George E. Runnel, Inc., Miami. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94072

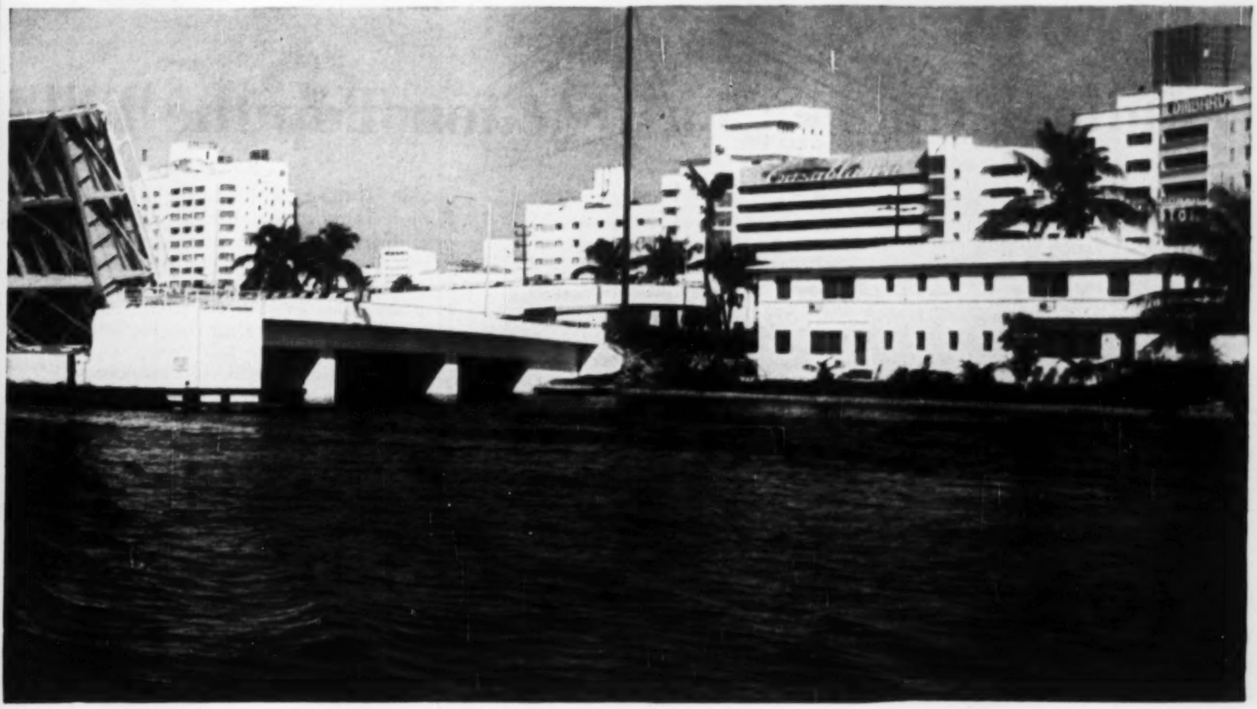
YOU CAN BE SURE... IF IT'S

Westinghouse

(*Top*) **Complete control of lock drive, warning signals and barriers on the busy bridge is centralized on this Westinghouse desk.**

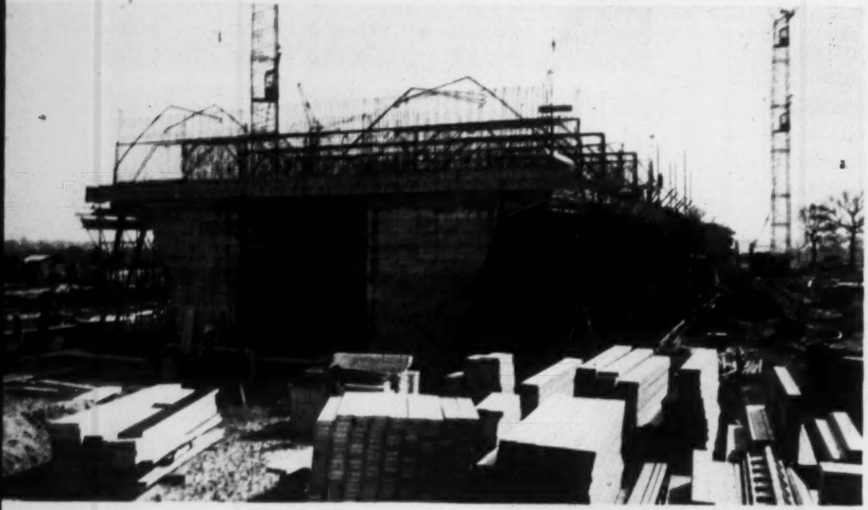
(*Middle*) **Reliable Westinghouse CIP wound rotor motors power the lifting mechanism for each side of the broad 63rd Street bridge. Their operation is coordinated on the Westinghouse control desk.**

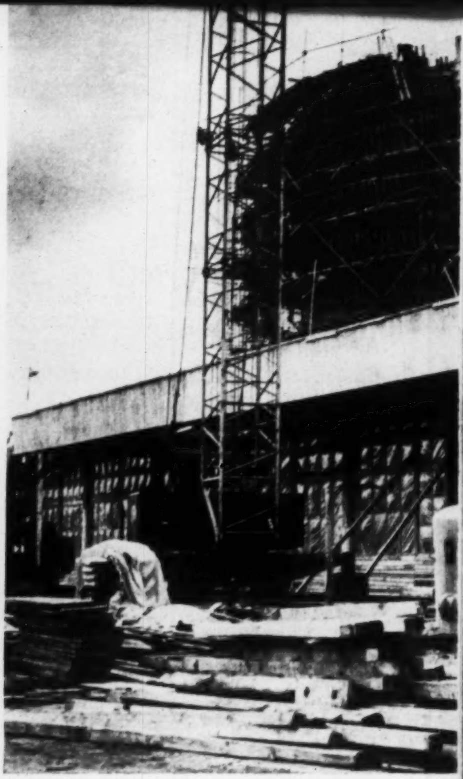
(*Left*) **Westinghouse special bridge type control switchboard.**



International

Interbau, West Berlin's 12 week building show, stars construction of buildings designed by architects from 18 countries





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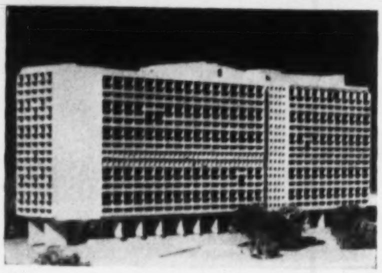
APARTMENT HOUSE designed by Le Corbusier is one of many interesting projects under way in Berlin. Apartments are separated by precast concrete walls, rooms by precast gypsum plank.



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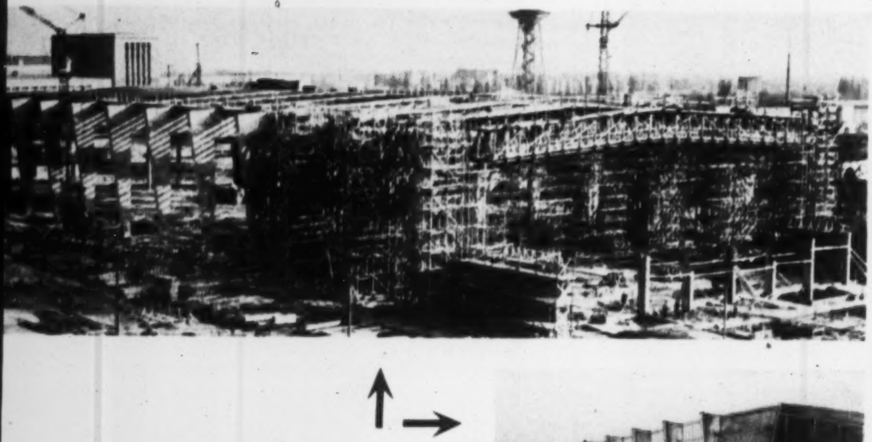
CONGRESS HALL, another Berlin project, has a roof hung on cables strung between a pair of concrete arches. U. S. architect Hugh Stubbins designed the building.

Buildings Under Construction Top the Bill



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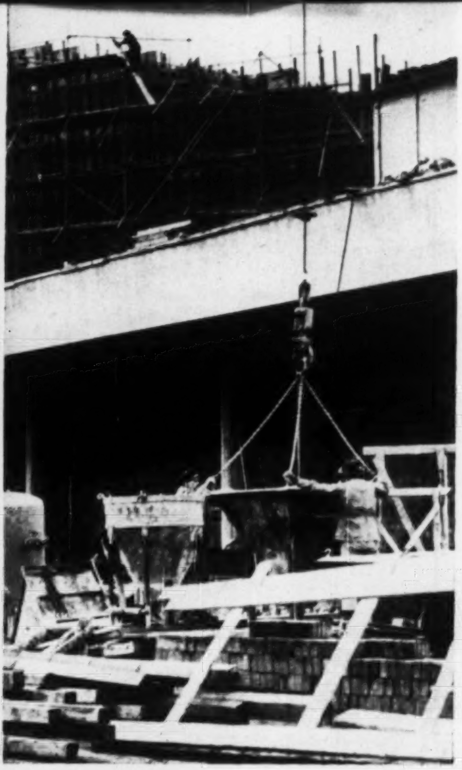
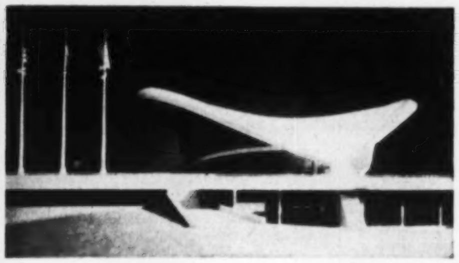
EXHIBITION HALL at Funkturn Fairgrounds has two-hinged, prestressed concrete rigid frames, 41 ft c-c, spanning 150 ft. Purlins and deck are precast concrete.

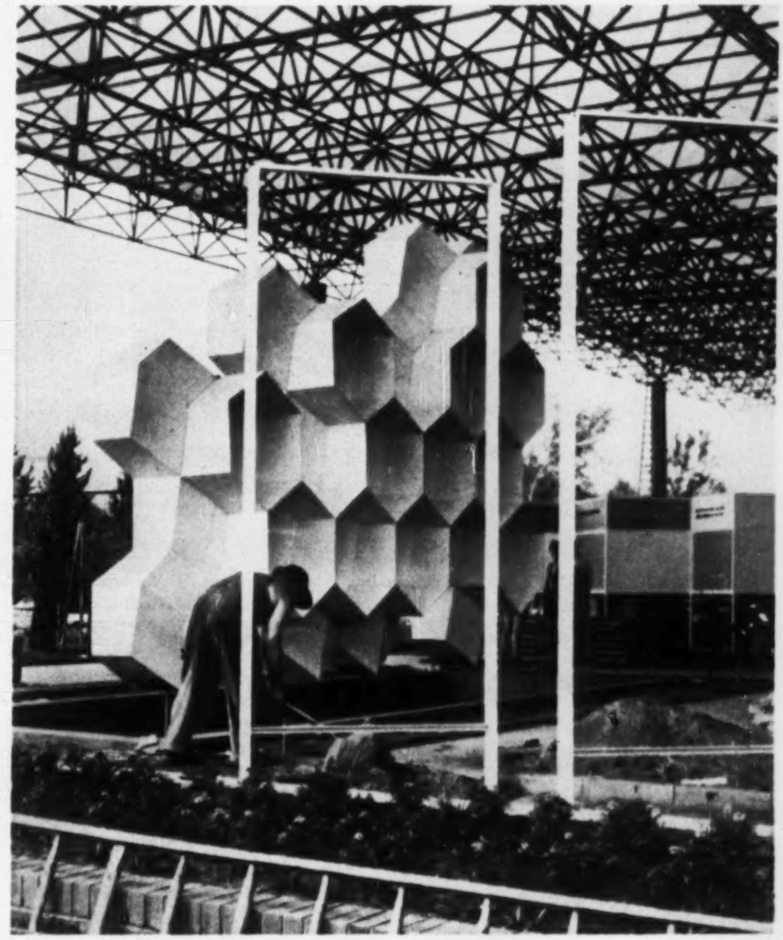
One of the best things about West Berlin's International Building Exhibition this summer is the permanent nature of the show's biggest attraction. Number one display on the 12 week program is actual work in progress on the reconstruction of a bombed-out district.

During the exhibition—which opened July 6 and closes Sept. 29—89 buildings may be observed in various stages of construction in the Hansa sector, a 12 block area leveled during World War II. Work on the buildings was scheduled so that collectively they would be in all stages of progress during the summer.

The $20 million bill for the Hansa reconstruction is being paid jointly by the West Berlin government, the West German republic, and the U. S. State Department's International Cooperation Administration.







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TEMPORARY BUILDING with light metal space frames covered with translucent plastic forms a tent-like shelter for the "City of Tomorrow" exhibit in Tiergarten.

at Berlin Show

• **Other exhibits**—Besides the Hansa project, Interbau (as the exhibition is called) includes a city-planning display, an exhibit on West Germany's postwar rebuilding, and construction of some notable buildings outside the Hansa. An added attraction during the final two weeks will be an exposition of building and decorating materials at Funkturm Fairgrounds.

The planning display consists of predictions in model form of what cities of the future will be like. It is on view in a light-metal and plastic structure in the famous central park known as the Tiergarten.

The shelter itself is designed to attract attention. Consisting of metal-tube space frames supporting translucent plastic, it is more like a tent than a building.

The reconstruction exhibit, which also has a city-planning flavor, is based on the rebuilding of 61 cities after World War II. Sponsored by the federal housing ministry, this display is located in Bellevue Castle.

• **Cable-suspended roof**—Nearing completion outside the Hansa, on a site in the Tiergarten near the East Berlin border, Benjamin Franklin Congress Hall is perhaps the most unusual building under construction in the city. Its roof structure is an arrangement of concrete arches and steel cables, similar in some respects to a few roof systems built in this country. Two concrete arches rise from the same pair of foundations but slope away from each other. Cables stretched between the arches support a saddle-shaped concrete roof deck.

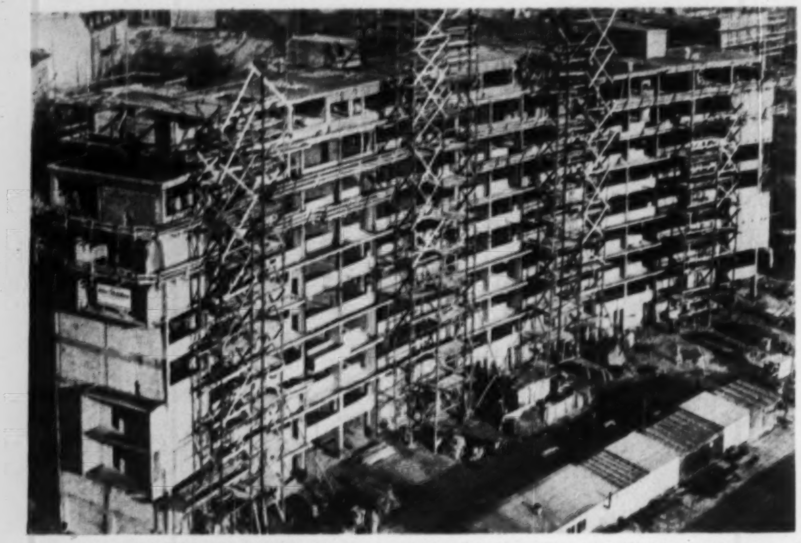
Stability against overturning (about the two support points) is provided by walls.

This auditorium is American-financed and American-designed. The Benjamin Franklin Foundation, a German-American group formed for the construction of the building, is paying for the building.

Hugh A. Stubbins, of Boston, is the architect, in cooperation with two Berlin architects, Werner Duettmann and Franz Mocken. Severud, Elstad & Krueger, New York City, did the structural design.

Also outside the Hansa—because of space limitations inside the district—a 17 story apartment house designed by renowned French architect Le Corbusier is rising. Foundations of this 184 ft high building were begun last February, and work on the upper stories is in progress now.

• **Industrial fair**—The exposition at Funkturm Fairgrounds will be Berlin's



CURVED APARTMENT HOUSE designed by Walter Gropius, U. S. architect, and Wils Ebert, of Berlin, has 64 apartments and a one-story annex for industrial use.

annual industrial fair. This year, to match the Interbau theme, the fair will be devoted to building and decorating materials. One exhibit, designed for the U. S. Information Agency by New York architect Peter Blake, will feature American skyscrapers. Six of them will be illustrated in displays designed with mirrors to create height and width illusions. Others will be shown in model form.

• Hansa buildings—Among the larger structures inside the Hansa are two 17 story and four 16 story apartment houses. There are also half a dozen apartment buildings of 10, 9 and 8 stories, plus a number of smaller multifamily dwellings. Other buildings range as small as one and two-family dwellings. The list also includes shopping centers, churches, schools and other buildings incidental to a model residential community the aim of the designers.

Some apartment buildings contain a certain amount of non-residential space. For example, a 10 story block of dwelling units has shops on the ground-floor. And a 9 story house, designed by German-American architect Walker Gropius, of Cambridge, Mass., and Wils Ebert, of Berlin, has a one-story industrial annex.

More than 60 architects—mostly German, but also many representing nearly a score of other countries—designed the Hansa buildings.

• Land acquisition—Before construction could get under way in the Hansa, it was necessary to clear 340 land titles. To retain central control and also to simplify planning of the project, West Berlin acquired all the land through a specialy created agency, then sold it to private developers. Some of these were contractors, who are now erecting the buildings themselves.

• Start from scratch—With all the land in a single ownership, the planners were free to forget old property boundaries. In the entire project, only one building—the Kaiser Friedrich Memorial Church—is being rebuilt on its original foundations. The church is a new design, though, in other respects.

Bid Call Void

Argentina to negotiate pipeline construction bid

An Argentine government agency's multi-million-dollar bid call for oil and gas pipelines and other related works has been declared void by the provisional government.

Instead, the state oil entity (Yacimientos Petroliferos Fiscales) has been authorized—by a special decree—to negotiate directly with one of the bidders, the TIPSA consortium. This group includes Tecnica Industrial y Comercial Petrolera S. R. L., the North American Utility and Construction International Co., Fish Engineering Corp., Fish North West Constructors Inc., the Clark Brothers Co., and Western European banking institutes: Credit Lyonnais, France; N. M. Rothschild & Sons Ltd. of England; Banco di Roma per la Svizzera, Italy; and the Austrian Kreditanstalt-Bankverein.

Conditions are that TIPSA build a pipeline from Campo Duran in Salta state to the Parana River port of San Lorenzo, near Rosario. This is a 930 mile long, 12 in. oil pipeline. In addition, a 24 in. gas line, 1,056 miles long from Campo Duran to Buenos Aires and La Plata will be built, as well as subsidiary oil treatment plants.

The 500 mile Mendosa-San Lorenzo oil pipeline, although included in the original bid call, is not included in the program. According to YPF a new tender for this pipeline will be called for.

The decree stipulates that YPF and the consortium have 60 days to negotiate a formal contract, subject to final approval by the Finance Ministry.

Actual work is to begin some 100 days after the signing of a contract, to enable TIPSA to assemble the necessary machinery and equipment.

Cost of the project amounts to more than $200 million, with $30 million payable in dollars, $120 million in Western European currencies and the rest in Argentine pesos at the free market rate. Payment terms are extended over an eight year period.

Some 250,000 tons of metal sheeting, the bidding consortium says, will be supplied by the Austrian National Ironworks VOEST (Vereinigte Oesterreichische Stahlwerke). Most of the piping will be Argentine manufactured.

The new decree stated that there are no legal obstacles to direct negotiations by YPF with the consortium, pointing out that TIPSA's bid offered good conditions for completion of the project and good financing terms.

Also, TIPSA is considered to be basically an Argentine firm, which had done work for YPF on occasions.

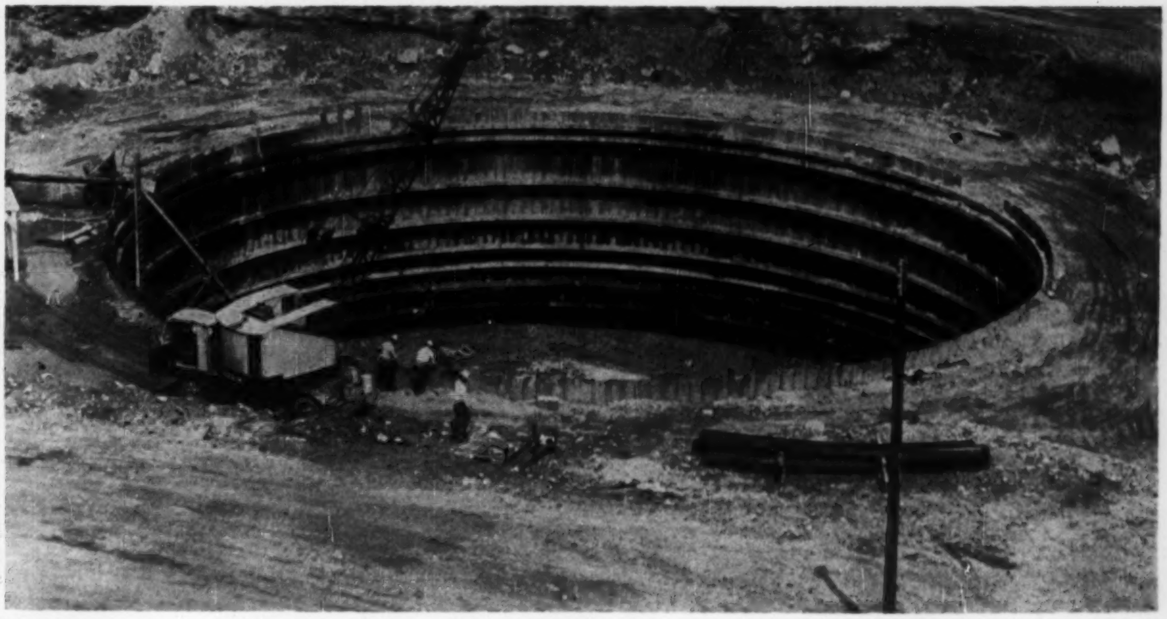
Tunnelers Wanted

New tunnels to ease Caracas traffic jam

The 7,000 ft high Avila mountain range, the natural barrier between Caracas and the Caribbean, will be pierced by another roadway, it has been announced by the Ministry of Public Works.

In January, construction will begin on a 3½ mile long tunnel—part of a 14 mile, $60 million superhighway project—that will directly connect the residential section of eastern Caracas to the beaches on the coast near Tanaguarena.

Plans call for twin vehicular tunnels starting at an altitude of approximately 3,300 ft at Avenda del Avila in the Altamira section and sloping toward



$100 million Allegheny County sewage project uses COMMERCIAL rings and ribs exclusively

The trunk sewer and treatment plant project currently being built for the Allegheny County Sanitary Authority to serve Pittsburgh and surrounding communities is both immense and unique.

NINETEEN MAJOR CONTRACTORS will spend more than three years excavating 1,200,000 yards of earth and rock. Thirty-three miles are in tunnel, thirty-four miles are open cut. The ultra-modern sewage treatment plant will serve seventy-seven communities. The huge project has many firsts to its credit, ranging from the method of financing to the method of sewage treatment. Two of these firsts involve specialized Commercial products.

SUNK IN WATER-BEARING SOIL on the banks of the Ohio River, the excavation illustrated above is the largest circular vertical shaft ever sunk without cribbing or basing. It is 100 feet in diameter, wide open and 120 feet deep. It will serve as a huge pumping station base at the terminus of the entire system. Sheet steel piling backed up with sectionalized steel rings specially designed by Commercial support the walls of the shaft. Made of 12" wide flange beams the rings are curved by Commercial and delivered at the site ready to bolt into place. They are sized for easy handling and placement. Bolt holes for joining the segments together are carefully matched. Erection is safe and simple.

COMMERCIAL STEEL TUNNEL RIBS support much of the record 33 miles of tunnel and provide the same kind of safe, sure, time and labor saving reinforcement. A good part of the difficult tunneling is through heavy rock and mixed face formations. Most of it lies close to the three major rivers which converge to make the famous Golden Triangle.

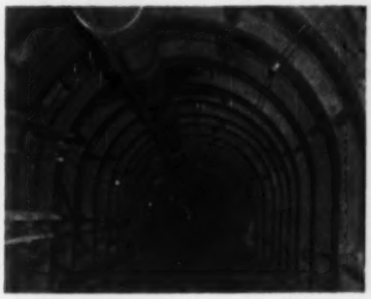
QUICK INSTALLATION of supports is a must because the hazard of cave-ins is constant. Accurate prefabricated curvature of Commercial tunnel ribs, their sure matched fit, and their convenient size and weight give solid protection, certain support, swift and easy installation.

COMMERCIAL CAN HELP YOU with your shaft or tunnel support problem, regardless of size. For information without obligation, write to Dept. E-37, The Commercial Shearing and Stamping Company, Youngstown 1, Ohio.

COMMERCIAL
shearing and stamping

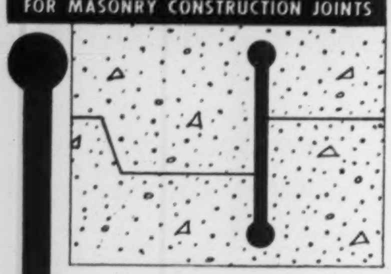
STEEL RINGS BY COMMERCIAL stabilize tremendous external pressure and keep this record 100-foot diameter shaft wide open to depth of 120 feet — half in rock.

COMMERCIAL TUNNEL RIBS support roof, protect the muckers and make good footage possible even where very heavy rock and mixed formations are encountered.



COMMERCIAL EXCLUSIVE SUPPLIER of all steel tunnel ribs to all five contractors for the entire 33 miles of tunnel in this gigantic sewage disposal project.

RUBBER
WATERSTOPS
FOR MASONRY CONSTRUCTION JOINTS



Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.

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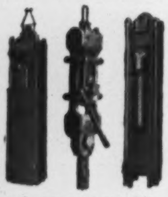

Now made in complete standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Also Sand Drain Equipment and Steam Generators.

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Also builders of coal and ore bridges and unloaders, and specially designed machinery.

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32 Mercer Street, Dover, N. J.

the seacoast at a grade of about 2.5%.

Effective immediately, the ministry will receive offers from construction companies for the tunnel which will be able to handle 2,400 cars per hour each way and have two highways 33½ ft wide of two lanes each and 36 ft high, separated by 130 ft between centers.

In Canon Juan Carabelleda, on the coast at the end of the tunnel, a highway will link the whole system to the already existing $71 million super-highway along the sea. The total length of the system including the tunnel will be 15½ miles. At each end of the tunnel two buildings six stories high will be constructed to house administration and maintenance services. Ventilation towers will be built on the Caracas end.

The new highway will relieve crosstown traffic in Venezuela's elongated capital and cut down driving time between eastern Caracas and the sea coast. The present super-highway to the port of La Guaira, enters Caracas at the city's western end, some seven miles distant from the projected tunnel. The tunnel system will help cut down the heavy week-end traffic on the Autopista that runs to La Guaira from the western sector of Caracas and also help distribute the flow of traffic through Caracas to the coast moro evenly.

Completion of the toll-financed project is set for the end of 1960.

Engineers Are Engaged for Formosa's Biggest Project

Construction of the largest economic development project yet undertaken by the Republic of China (Formosa) appears assured with the recent engagement of Tippetts-Abbett-McCarthy-Stratton of New York to prepare final designs for $50 million Shihmen Dam Project. The International Cooperation Administration has allocated $7.8 million to cover engineering costs and procurement of American equipment and materials.

During the past year, the Chinese, through their Shihmen Development Commission, have built access roads and initiated work on the diversion tunnel.

Shihmen Dam, located on the Tanshui River about 30 mi southwest of Taipei, is to be a 410 ft high arch. It will create a 256,000 acre-ft reservoir to be used to generate 120,000 kw of power, irrigate 135,000 acres of rice paddies, provide flood control and improve public water supply and river low flow conditions.

Work will be carried out directly by the Chinese development agency, with TAMS to provide construction advisory services.

Japan Shows Interest in Egypt's Aswan Dam

The Japanese government is reported discussing with Egypt an agreement providing technical assistance in the construction of high Aswan Dam prior to international bidding in which Japan will participate.

Japan is said to be planning to draw up a technical aid treaty with Egypt and may soon invite technicians from Cairo on a first-hand inspection of Japan's engineering capabilities.

Egypt's Premier Nasser recently said that his engineers are studying reducing the scope of the huge project to bring it in line with the country's financial capabilities.

Australian State Plans Two Huge River Stations

New South Wales State in Australia has announced plans to construct two 800,000 kw thermal power stations at a cost of about $275 million.

The stations are to come into operation in 10 years time. They will be located on coal fields and each will use more than 1 million long tons of coal a year.

The sites for the new stations have not been announced yet.

At the rate power demand is increasing, the New South Wales State has to double its generating capacity every eight years.

Three large power stations are now under construction: Tallawarra (320,000 kw), Wangi (330,000 kw), and Wallerawang (240,000 kw).

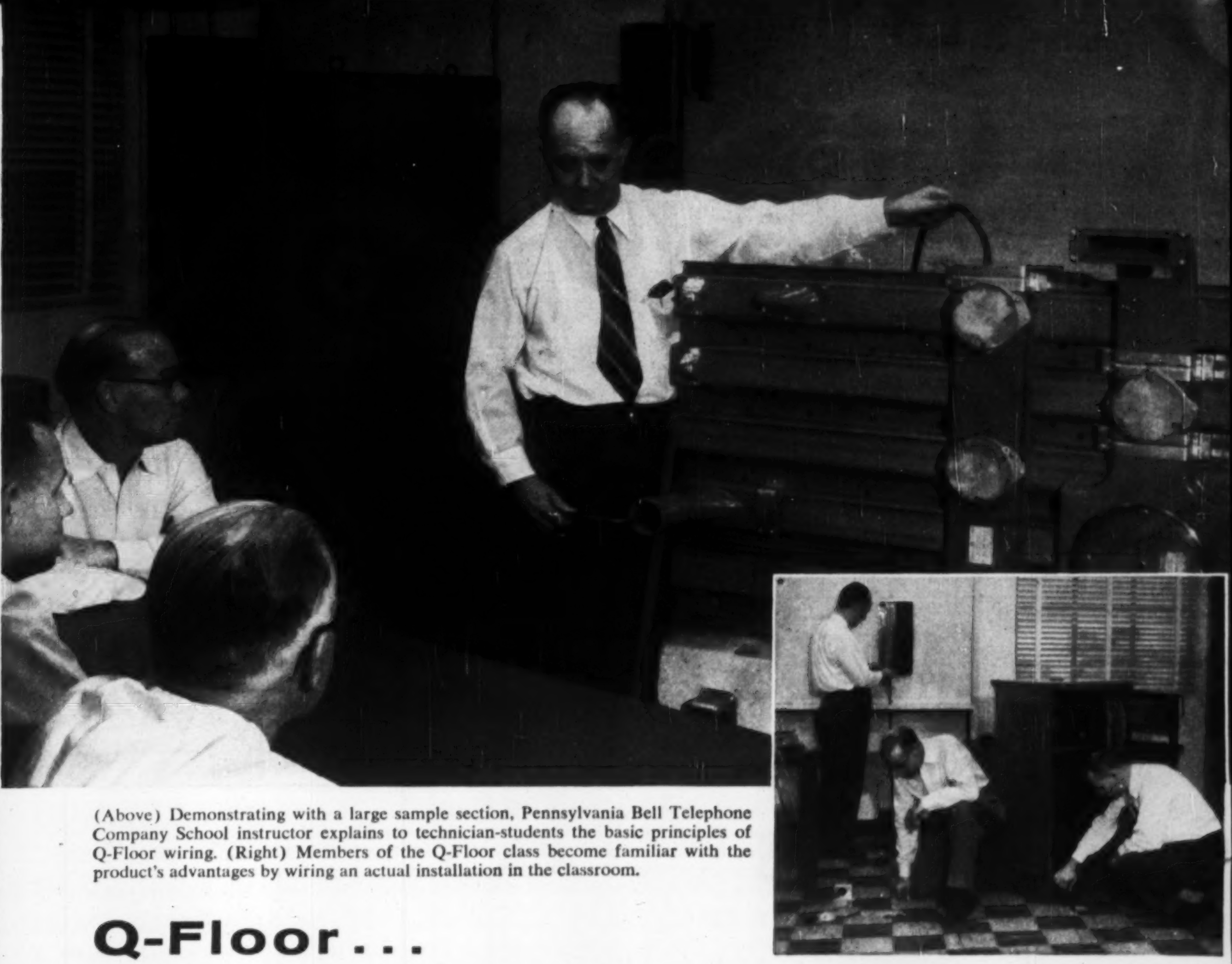
New Northwest Passage For DEW Supply Ships

A new Northwest Passage in the Arctic has been found. It is Bellot Strait, a 17 mile channel with a minimum depth of 50 ft, which will provide an escape for DEW-Line supply ships should Beaufort Sea ice packs move back to the Alaskan Shore.

The new outlet runs east and west with Boothia Peninsula on the south side and Somerset Island on the north side.

Trapped ships in Franklin Strait now will be able to go through Bellot Strait, Prince Regent Inlet, Lancaster and out to Baffin Bay.

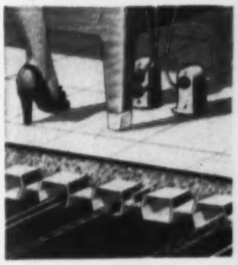
Previously, passage out to sea was possible only during the summer season and even then called for the help of ice breakers, for every other waterway north of Bellot is blocked by ice. Bellot Strait is noted to be generally free of ice.



(Above) Demonstrating with a large sample section, Pennsylvania Bell Telephone Company School instructor explains to technician-students the basic principles of Q-Floor wiring. (Right) Members of the Q-Floor class become familiar with the product's advantages by wiring an actual installation in the classroom.

Q-Floor . . .
a Required Subject at this School

Every year, an estimated 1,600 Bell Telephone Company of Pennsylvania technicians attend a special school near Harrisburg, Pa. to learn the latest practice in line and equipment installation. Bell feels that cellular steel subflooring is so important that an entire classroom is devoted to the subject of Q-Floor wiring. Here the students learn by working with an actual Q-Floor installation that wires can be pulled and telephone or electrical outlets established often in a matter of minutes, and that every six-inch area of the entire floor is available for outlet use. This flexibility, so graphically pointed out to Bell students, plus substantial savings in construction time and money has influenced owners and architects all over America to provide for the future by building with Q-Floor today. Use the coupon to write for literature.



With Q-Floor performing its dual function of a structural subfloor and as a close-module underfloor wiring distribution system, building owners, designers and contractors benefit from construction speed, convenience and complete wiring flexibility.

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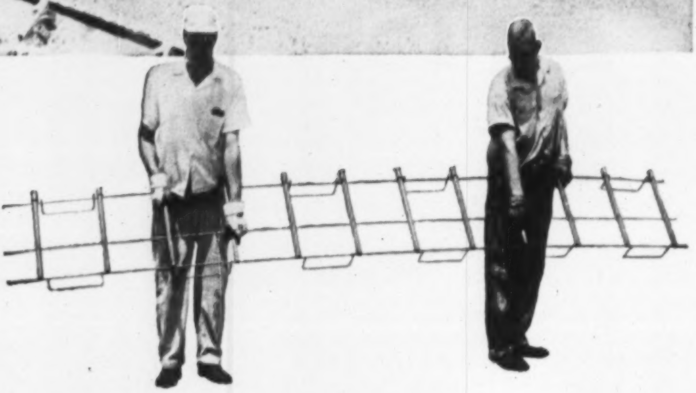

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Legal

Is No Breach of Contract If Performance Prevented

An owner cannot prevent a contractor from performing a contract and then sue the contractor for nonperformance.

The rights and liabilities that accrue when performance is hindered or prevented have been discussed by many courts. Some of the general rules that have emerged are these:

"It is a well established principle that if a promisor prevents or hinders the occurrence, happening or fulfillment of a condition in a contract, and the condition would have occurred or happened or would have been fulfilled except for hindrance or prevention by the promisor, then the performance of the condition is excused and the liability of the promisor is fixed regardless of failure to fulfill the condition."[1]

In a New York case,[2] the Court of Appeals stated: "In the case of every contract there is an implied undertaking on the part of each party that he will not intentionally and purposely do anything to prevent the other party from carrying out the agreement on his part.

"This proposition naturally follows from the general rule that a party who causes or sanctions the breach of an agreement is thereby precluded from recovering damages for its non-performance or from interposing it as a defense to an action upon the contract." (Young v. Hunter, 6 N. Y. 203, Barton v. Gray, 57 Mich. 622, and cases there cited).

"Where a party stipulates that another shall do a certain thing, he thereby impliedly promises that he will himself do nothing which may hinder or obstruct that other in doing that thing." (Gay v. Blanchard, 32 La. Ann. 497).

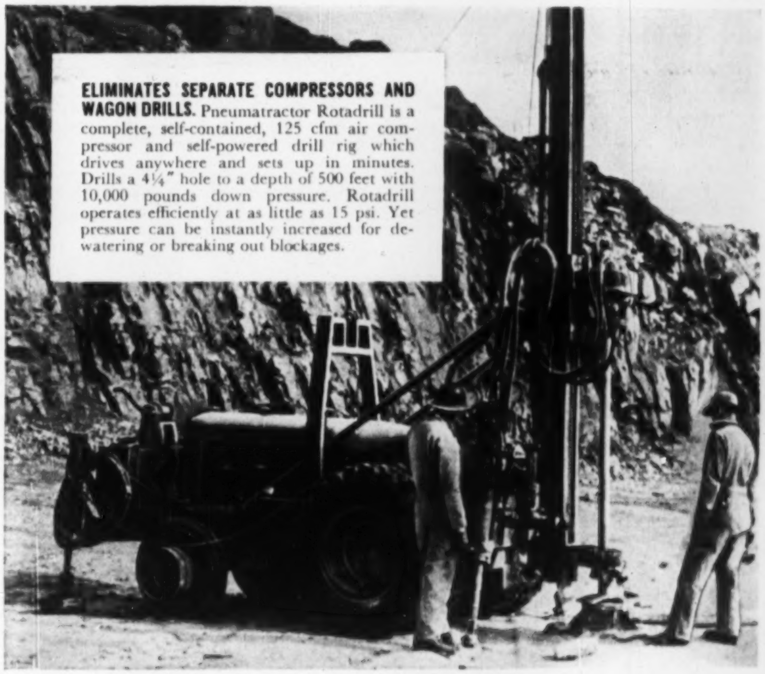
(1) Schulte Transportation Co. v. Hewitt, 299 S. W. 2d 568, St. Louis Court of Appeals, Feb. 28, 1957.

(2) Patterson v. Meyerhofer, 204 N. Y. 96.

Court Disallows a Claim Based on Verbal Promise

Under the Statute of Frauds a verbal promise made to a contractor to pay for work performed for another person is not enforceable.

Such a situation was before the New York courts earlier this year in a case where a contractor had done remodeling work on a hotel that was later sold. The sale was subject to a mechanic's



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PENNSYLVANIA DRILLING CONTRACTOR

Cuts 18 hours from drilling time

It actually happened. In rock-ledged Pennsylvania soil, a Schramm Rotadrill mounted on Pneumatractor made hole in six hours that took 24 with a conventional rig. This is a matter of record—and so is the fact that, in the hard limestone areas of Michigan, Rotadrill increased penetration rates 55% to 66%.

Rotary drilling with compressed air is one reason for Rotadrill's cost-cutting speed. Because compressed air keeps the hole clean, the bit works constantly on new rock, instead of regrinding chips. Fast set-up is another time-saver; simply raise the mast, level the rig and attach bit—all in a matter of minutes. Finally, Rotadrill makes it easy for *one man* to add or remove drill pipe without trouble or delay.

Pneumatractor Rotadrill is a *complete* drilling unit. There's no expensive, cumbersome superstructure to erect and dismantle. Also, Pneumatractor Rotadrill is *self-propelled*—travels anywhere under its own power and doubles as a tractor and air compressor when not drilling. Compactness and simplicity of the rig keep maintenance costs at rock bottom.

Full details of design, construction and advantages of Pneumatractor Rotadrill are yours for the asking. Write for your free copy of Catalog PR-56.

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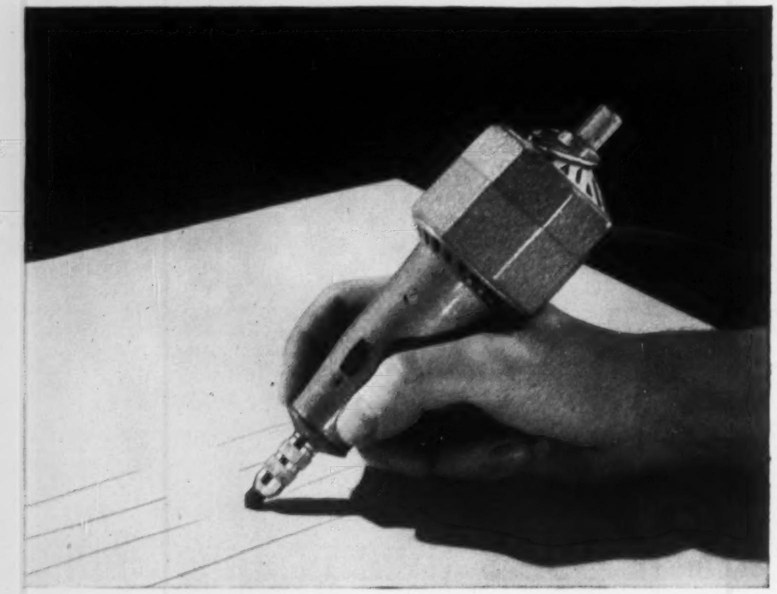
BIG SAVINGS IN ADDING OR REMOVING PIPE Drill controls are mounted in one bank near base of mast for easy, one-man operation. Fast vertical action of rotative head serves as pipe hoist for pulling pipe string. Separate valves control each outrigger, forward and reverse rotation motor, slow down-feed, rapid down-feed and breakout motor.

MAST LOWERS FOR TRAVELING. Heavy welded structural steel mast is lowered for traveling between jobs. Schramm Rotadrill is also available truck mounted. Either way, Rotadrill is the most maneuverable of drill rigs—goes where bigger rigs can't.



DRAFTING TRENDS

New erasing machine for fast, clean, effortless erasures

The idea of erasing machines certainly is not new. However, it wasn't until the Sovereign was developed that so many time-saving and drafting efficiency features were combined into one product.

Distributed by POST, the smooth-running, light weight Sovereign erasing machine can be used as accurately and effortlessly as a pencil point. Even for fine lines, just a dab with an easy-to-handle Sovereign gives a clean, neat erasure without damage to the drawing.

The speed of the rapidly rotating eraser does the work, not pressure. In fact, if too much pressure is used, the machine automatically stalls, thereby safeguarding your drawing. Operation is cool, as the Sovereign definitely will not overheat.

Using a Sovereign is just as easy as reaching for an old fashioned eraser . . . and much more convenient. Curved to fit the hand, it incorporates many design features of special appeal to engineers and draftsmen. For example, the hollow armature shaft takes a full 7″ core eraser which feeds through an instantly adjustable chuck. The extra long eraser eliminates those frequent, annoying changes often associated with ordinary erasing machines using short erasers. (When a change is finally made, the chuck cuts replacement time to *less than 10 seconds.*)

The large loop hanger is ideal for hanging the Sovereign within easy reach of the board. Or, if the erasing machine is used frequently, the octagonal shape design permits the draftsman to lay it on the drawing board without fear of it rolling off.

For more information on the Sovereign Erasing Machine, see your POST dealer or write to the Reader Service Division of the Frederick Post Company, 3658 N. Avondale Ave., Chicago 18, Illinois.

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lien for the amount owing the contractor. In an action to foreclose the lien, the contractor also named the new owner as a defendant, claiming that the latter had orally promised to pay the debt of the old owner.

The Court of Appeals ruled that the new owner could not be sued on his verbal promise, because the Statute of Frauds requires any promise to pay for the debt of another to be in writing. It also held that the contractor could not enforce the lien because he had failed to file a notice of lien within one year as required by the New York Lien Law.

Judgment was allowed against the original owner, however, but only to the extent it represented items covered by the lien. Items of cost covering personal property were disallowed.[1]

(1) Noce v. Kaufman, 141 N. E. 2d 529, N. Y. Court of Appeals, Feb. 28, 1967.

A Contractor May Promise Certain Results

If a contractor agrees to achieve a particular result and fails to do so, he can't recover for the work he has done if it turns out to be useless.

This is the predicament a well digger in Alabama found himself in recently. He had agreed to produce a well that would provide water fit for human consumption and the owner had agreed to pay him $5.50 for each foot of the well's depth.

As the contractor proceeded with the work the owner paid him $935 until the well struck water. The water encountered was unclean, muddy, scummy and could not be used for human consumption.

The owner, upon the refusal of the well digger to start digging a new well, brought an action against the well digger to recover the $935 paid to him for the useless well he had dug. The owner obtained a judgment which was affirmed on appeal.[1]

The appellate court held that the owner was entitled to a return of the money paid the well digger, since the latter had not performed his contract and the owner had not had anything of value from the work done by the contractor.

(1) Hurst v. Snider, 92 So. 2d 542, Court of Appeals of Alabama, Feb. 5, 1957.

These summaries of court decisions are prepared by I. Vernon Werbin, New York attorney and civil engineer.

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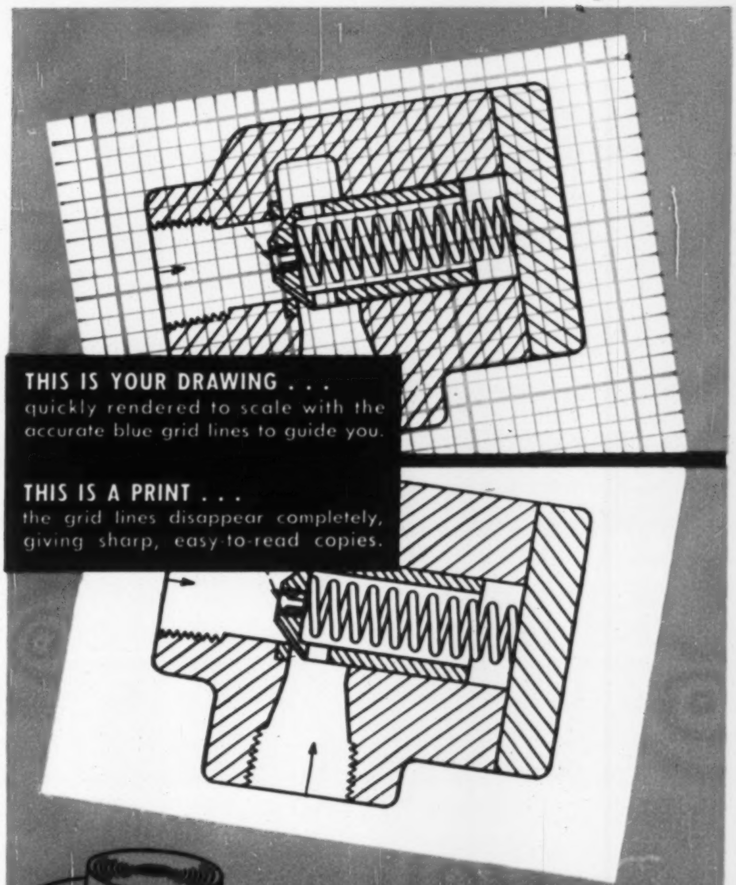

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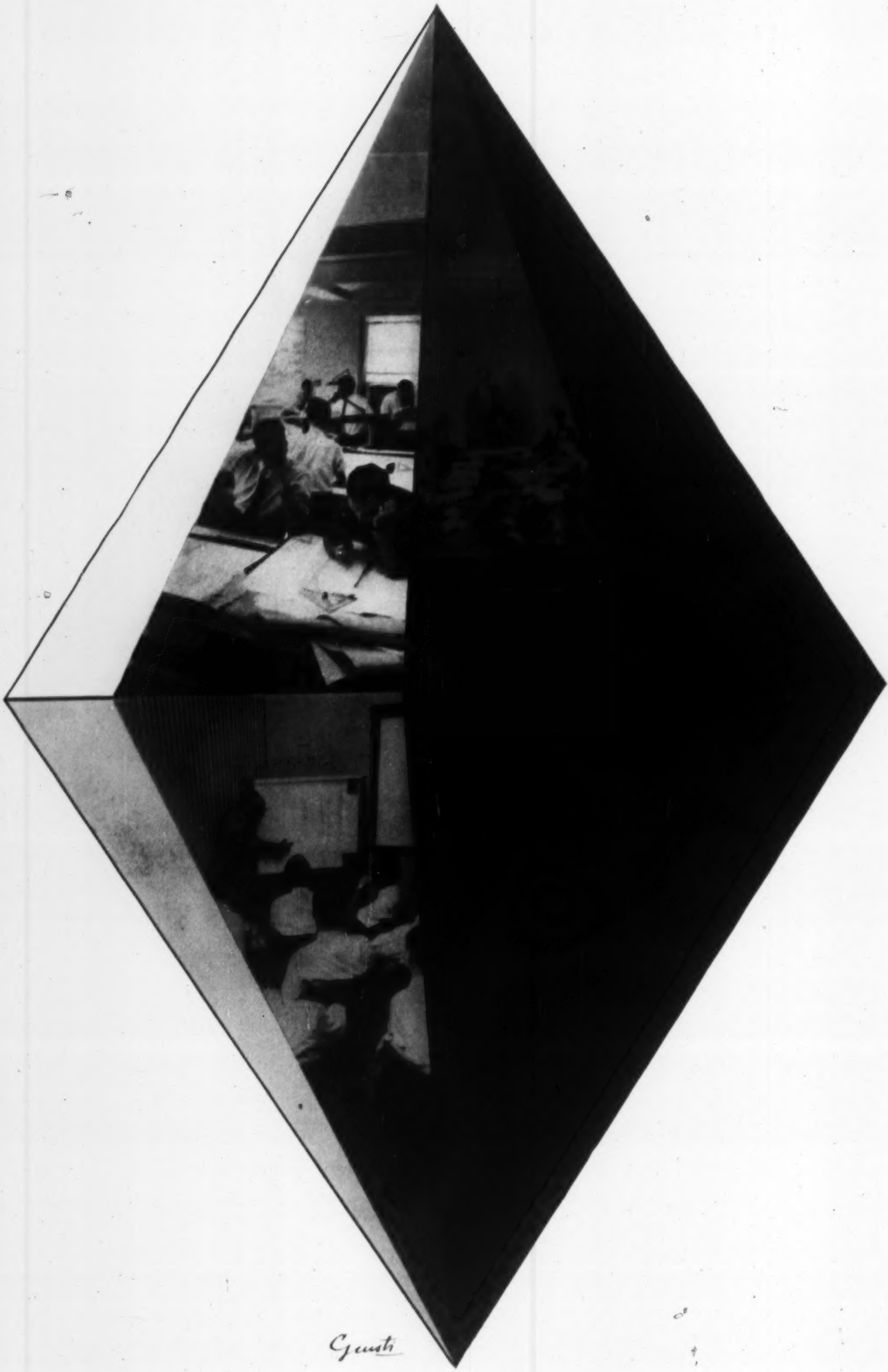

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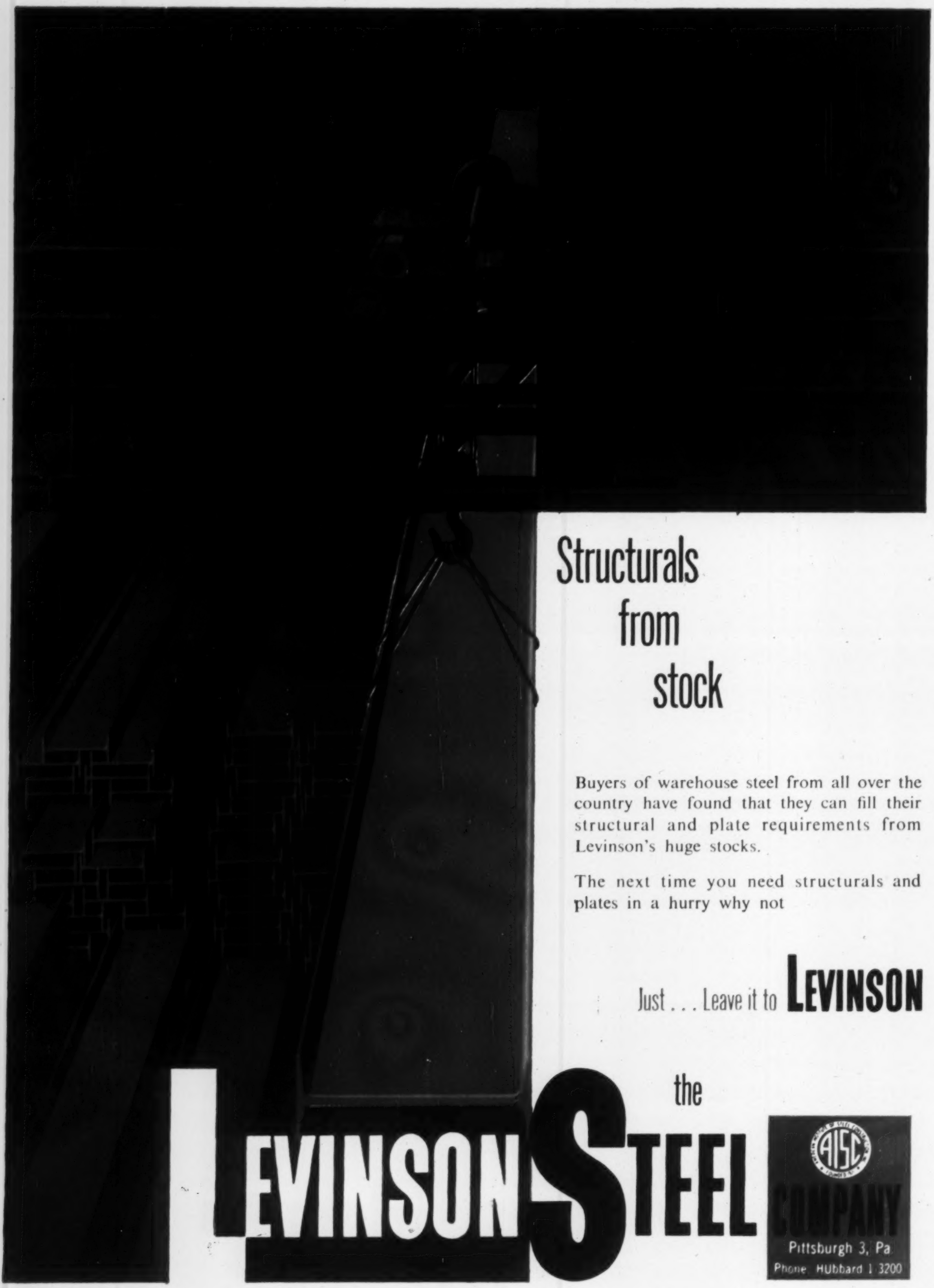

Structurals from stock

Buyers of warehouse steel from all over the country have found that they can fill their structural and plate requirements from Levinson's huge stocks.

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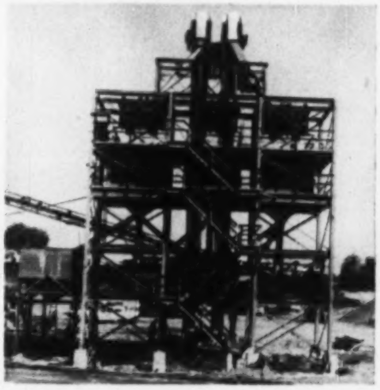
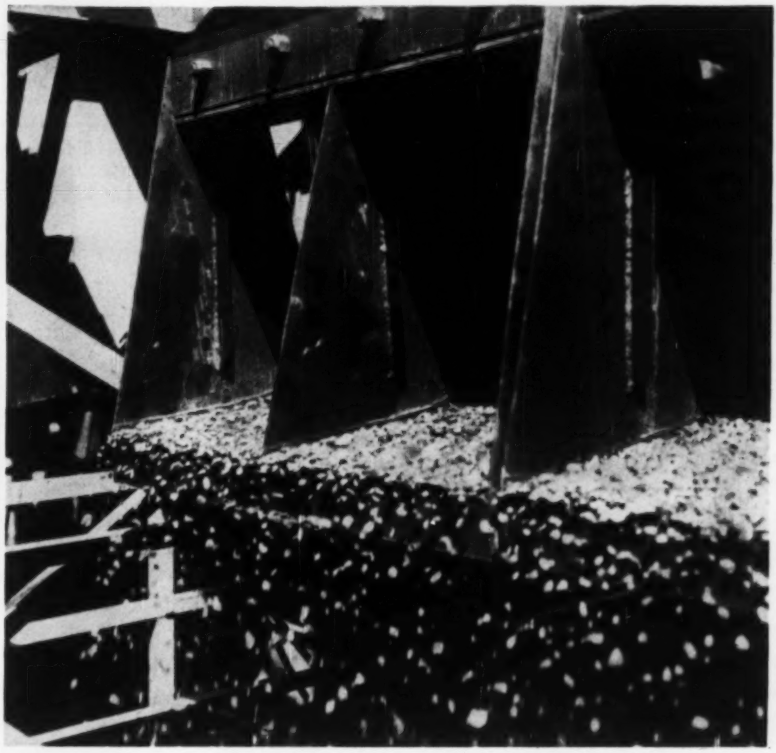
Hard gravel not only makes better aggregate but also bounces better than soft gravel. In the plant at right, bank-run gravel is fed a layer at a time (below)—to an impact plate where . . .





Low-Grade Gravel Is Given the Bounce

A process for upgrading gravel from natural deposits has been developed, and the first commercial plant is now in operation at a pit of the Whittaker and Gooding Company near Ann Arbor, Michigan.

It is now possible, according to the Blaw-Knox Company, Mattoon, Ill., to upgrade gravel mechanically, removing soft stones from the hard, desirable, coarse aggregate needed in construction. The process makes use of the fact that the soft, deleterious materials have elastic properties widely different from those of hard, sound stones.

Gravel to be graded is elevated into an overhead hopper, then gravity fed to a vibratory feeder. Stones are then delivered from the lip of this feeder so that they drop in a required pattern to the surface of a massive inclined plate, made of abrasion and impact resistant alloy.

The bounce of the stones from this plate depends on their elastic properties and their shape.

The hard stones of any given gravel will respond in such a manner as to give a characteristic distribution curve. The soft stones will also pattern themselves into a curve—but a different and shorter one.

"Bounced" stones are collected in three separate compartments with stones of similar elasticity being dropped into the same bins. The compartments are separated by adjustable dividers.

The divider farthest from the impact plate is set at a distance from the plate so that the product in that compartment will contain the desired composition. This might be, for example, an aggregate composed of 99% by weight of hard stone and 1% of soft stone.

The material collecting in the compartment closest to the impact plate will be predominantly soft stones and will be discarded.

The material collecting in the middle compartment will contain some hard and some soft. This is automatically and continuously recycled to the feed, to be dropped again on the impact plate.

The net result of the operation of the first stage is the production of usable stone and a discard. The discard from the first stage still contains too large a percentage of hard stones to be rejected. To recover the larger part of the sound, hard stones, the first stage discard is fed to a second and smaller separating stage. The operation of the second stage is analogous to the first.

• **Development**—Paul Wolfert, general sales manager of the Construction Equipment Division of Blaw-Knox, predicts that many state highway departments will tighten coarse aggregate specifications in the near future.

At present a typical specification requires that aggregate contain no more than 3.0% of soft stone and no more than 5.0% of hard absorbent stones. The maximum content of chert (a highly siliceous sedimentary rock) is frequently specified as 3.0 to 5.0%. The sum of the percentages of the three deleterious component stones cannot exceed 8.0 to 10.0% depending upon the particular aggregate specified.

Since natural gravel deposits contain both good and poor quality aggregate, engineers began looking into the problem; and, with the assistance of E. H. Leslie of Ann Arbor, Mich., developed this process and plant.

• **Plant details**—The plant is relatively simple, consisting primarily of bins, conveyors and elevators, vibratory feeders and impact plates. It can be operated and maintained, according to the manufacturer, by personnel normally employed in gravel pit operations.

The material can be graded to any desired soft stone percentage, such as 0.5%, 1.5%, 3.0% or more. This is accomplished by shifting the bin dividers. By placing the last divider farther from the impact plate, higher quality stone is collected.

Elastic beneficiation is applied to well washed, naturally occurring pebbles graded from No. 4 up to a maximum of 2½ in. to 3 in. The pit run or dredged material should be washed and screened in the conventional manner. The upgraded product is lightly washed and screened to produce aggregates of the required size grading.

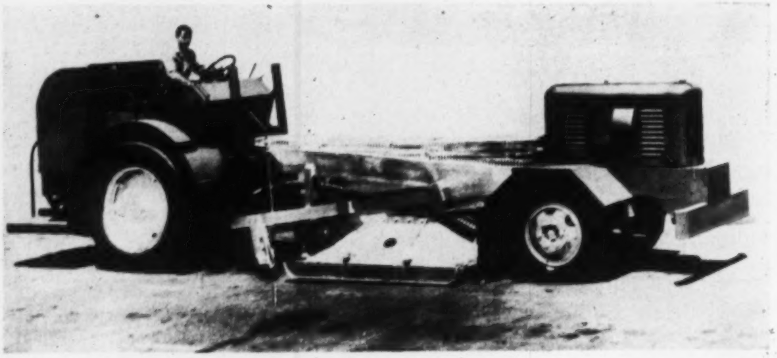
Even though the plant at the Whittaker and Gooding pit is new and the first commercial plant of its type—ease of operation, economy, upgraded product and little maintenance is reported. Aggregates at this site that naturally contain from 5.0 to 8.0% of soft stone have been beneficiated at a cost of a few cents per ton, making a product which contains any desired percentage of soft stone from 0.5 to 3.0%.

Since the plant must be engineered to some extent to the type of natural gravel deposits found in the area in which the plant will operate, a laboratory and pilot plant for testing samples and available to all gravel producers is maintained by Blaw-Knox.

"Mole" Goes Through Soil Powered by Air Piston

An air-powered "mole", designed in Poland and demonstrated at the recent Poznan Fair, is said to be able to drag power wires through a railway embankment, draw a length of flexible water pipe under a road, or follow a curved path to pull a steel lifting cable beneath a sunken ship.

Invented by Wiktor Zinkiewicz, the 53 lb projectile is driven through the ground by an internal piston repeatedly hammered by compressed air against the cylinder head. Air pressure required is 60-90 psi and the rate of travel is 65 to 130 ft per hr, varying with soil density, it is reported. The unit is about 3 ft long and 3½ in. in diameter. CENTROMOR, MOTOKOWSKA 49, WARSAW, POLAND.

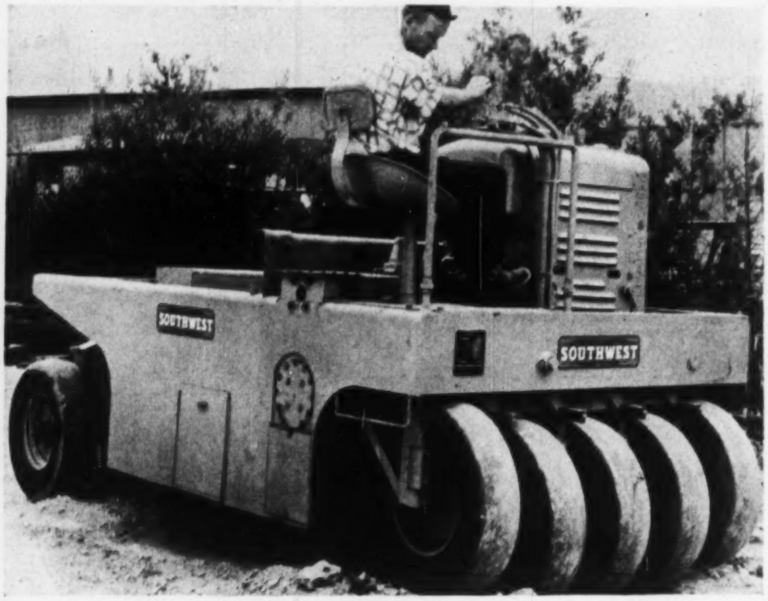


Header-Planer Design Stresses Safety

In what the manufacturer says is a complete redesign, the Monatco heater-planer has been engineered to meet maximum efficiency and economy in its specialized work, and to remove all fire hazard.

Accordingly, the new Model M-2 places the main drive engine, primary transmission and steering over the front axle—out of the heat zone. Operator, fuel tanks, secondary transmission and final drive are well to rear of the heat zone. All parts in the heat zone subject to heat damage are water-cooled, and two automatic fuel cut-offs provide final assurance against fire.

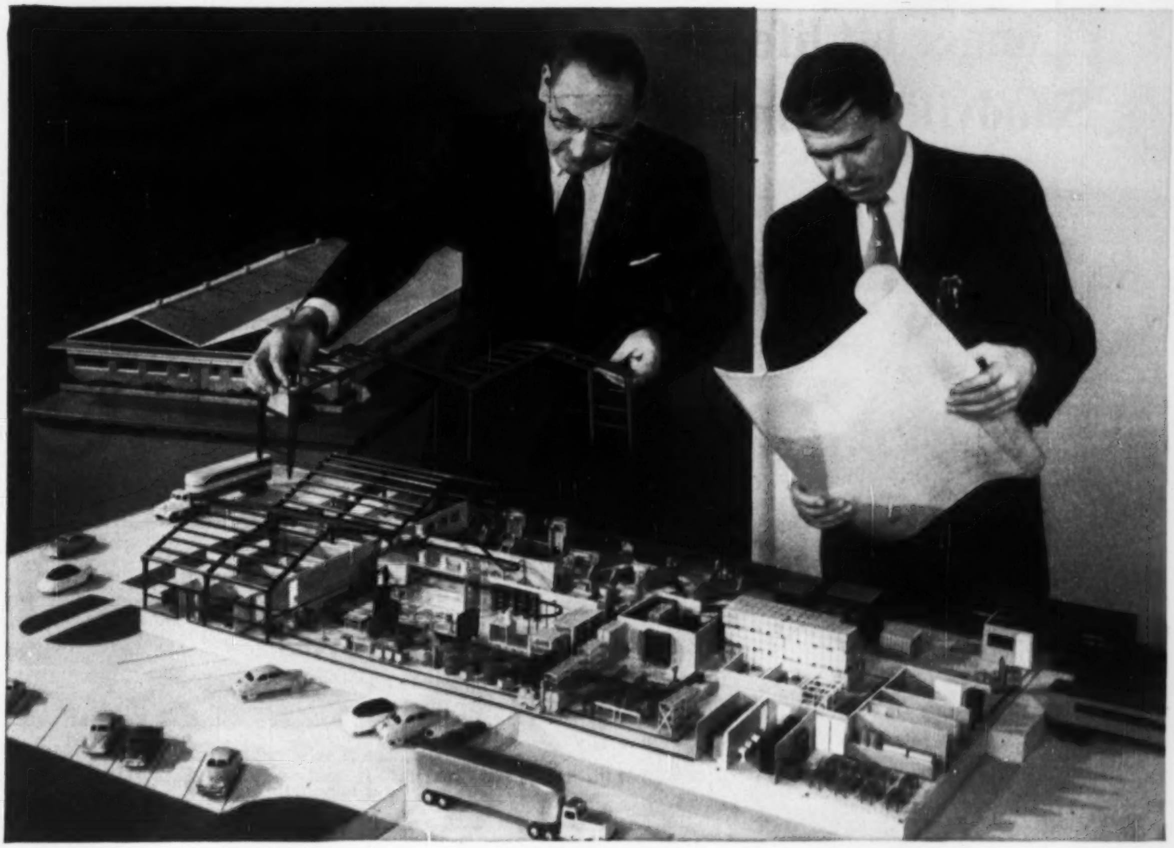
Open frame design is said to give maximum visibility and accessibility to all major components; heating hood and blades are clearly visible from the operator's seat, and the heat rises straight up from the hood without deflection to front or rear. MONTACO MFG. CORP., 1401 WOODLAND, KANSAS CITY, MO.



Roller Offers Uniform Vertical Compaction

The 9 and 11 ton "Vertical-Pak" rollers, now being offered, are said to afford, vertical oscillation for the first time, in their weight classes.

According to the manufacturer, vertical oscillation affords a constant, uniform wheel load as well as uniform capacity on uneven surfaces, soft spots, or where stones or boulders are present in the material undergoing compaction. A further claim is that excessive weights on any one tire or wheel are impossible under normal operating conditions, and curbs and other obstacles are no longer a hazard for close work. SOUTHWEST WELDING & MFG. CO., CONSTRUCTION MACHY. DIV., 3201 W. MISSION RD., ALHAMBRA, CALIF.



Why engineers are choosing pre-engineered Butler buildings

Engineers are discovering that precision-made, pre-engineered Butler buildings provide a completely standardized, yet flexible system of building. They have discovered that this system enables them to substantially reduce routine engineering time. Being freed from detail work, they have been able to concentrate on planning the over-all facility. Results—they have been able to provide more efficient facilities at lower cost . . . in far less time than traditional construction methods would permit.

The clear-span construction permits wide flexibility in laying out production, materials-storage and finished-stock areas. The truss-free, gable roof not only provides clear, overhead space for the installation of utilities and materials-handling systems, but also ventilates naturally. With the installation of Butler plastic, translucent Lite*Panls, engineers can take advantage of natural daylight for much of their lighting requirements. The weather-tight construction plus vapor-sealed insulation produces a building that is easy and economical to heat or cool, because there is less heat loss than in a traditional masonry building.

For further information on the Butler Building System and how it can help you build well . . . quickly and at low cost, a wide variety of industrial facilities, phone your Butler Builder. He's listed in the Yellow Pages of your phone book under "Buildings" or "Steel Buildings" or write direct.

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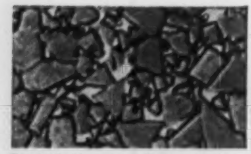
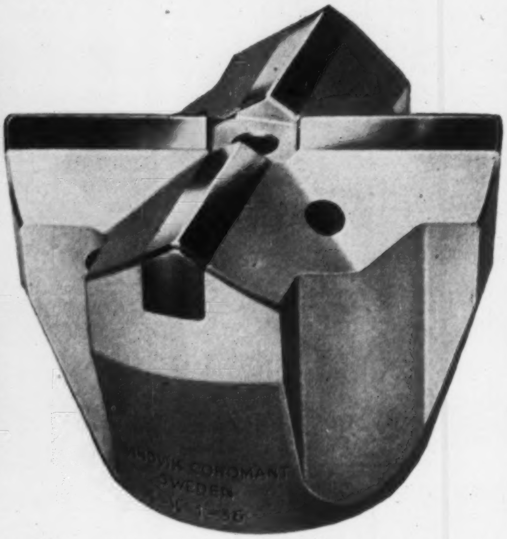


Sandvik Coromant Tungsten Carbide. (Microphoto) Uniformity of size, even distribution of grain are marked. Free from porosity and impurities—therefore stronger, longer-lived.

Low quality Tungsten Carbide. (Microphoto) Black marks are contaminations caused by deficient production control. They weaken the carbide, reduce its working life.



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3 the bigger Sandvik Coromant bits are all of X-design, which prevents rifling. No wonder Sandvik Coromant inserts are the most widely used in the world, drilling more than one billion feet every year.

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	$1\frac{11}{16}$" K	$\underline{3}$, $\underline{3\frac{1}{2}}$, $\underline{4}$ and $\underline{4\frac{1}{2}}$
BOTTOMING TYPE	$1\frac{1}{4}$" Rope	$1\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, $\underline{2\frac{3}{4}}$ and $\underline{3}$
	2" Rope	$\underline{3\frac{1}{2}}$, $\underline{4}$, $\underline{4\frac{1}{2}}$ and $\underline{5}$
	400	2, $2\frac{1}{4}$ and $2\frac{1}{2}$
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The sizes underlined are X-shaped bits

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MEXICO— *Apartado Postal 56, Torreon, Coahuila. Phone — 39-07*

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Publications

Wire rope—A new illustrated bulletin entitled "Abrasion," Bulletin No. 101, describes the principal causes of abrasion, called the commonest and most destructive enemy of wire rope. It lists many practical suggestions for minimizing abrasive effects. LESCHEN WIRE ROPE DIV., H. K. PORTER CO., INC., 2727 HAMILTON AVE., ST. LOUIS 12, MO.

Prefab steel buildings—An 8 page booklet gives advantages, structural details and illustrations of various types of pre-engineered and prefabricated steel building produced by H. L. VOKES CO., 1000 WAYSIDE RD., CLEVELAND 10, OHIO.

Crushers—A 20 page brochure illustrates and gives specifications on the manufacturer's line of crushing, screening, washing, loading, feeding and conveying equipment produced for the mining, quarrying and aggregates industries. UNIVERAL ENGINEERING CORP., 625 "C" AVE., CEDAR RAPIDS, IOWA.

Traffic control—A new Catalog 65 contains illustrations and descriptive material covering traffic and street name signs, both plain and reflectorized; reflective coating kits and striping; reflective beads and accessories. Also included are specifications, price sheets, installation data and tips on the use of these products. CATAPHOTE CORP., TOLEDO 10, OHIO.

Diesels—This illustrated folder, "Payoff Power for the Roads Ahead," shows the important role diesel power will play in construction of the federal-aid interstate highway system. Described are the basic engines used in track-type tractors, motor graders, wheel tractors and traxcavators. CATERPILLAR TRACTOR CO., PEORIA, ILL.

Steel shoring—Fully illustrated with typical job applications, a new booklet is devoted to methods of using steel shoring and scaffolding in highway construction. Cost-cutting methods of using the shoring are pointed out, along with layouts and specific instructions for particular applications. Bulletin G208. THE PATENT SCAFFOLDING CO., INC., 38-21 12TH ST., LONG ISLAND CITY 1, N. Y.

Spray tanks—Information in booklet form is now available on the Littleford Model 101 utility spray tank which is said to combine the usefulness of bar spraying, hand spraying and pouring pot patching. LITTLEFORD BROS., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

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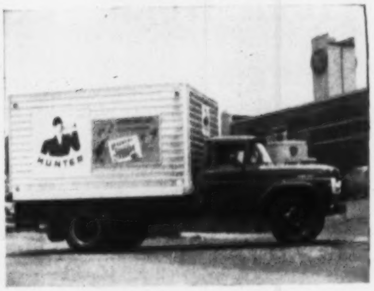

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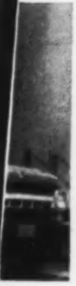

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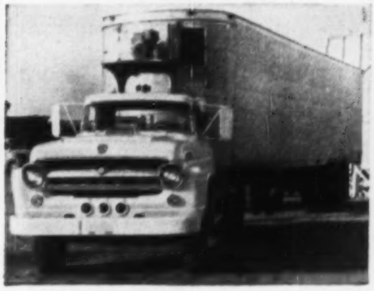

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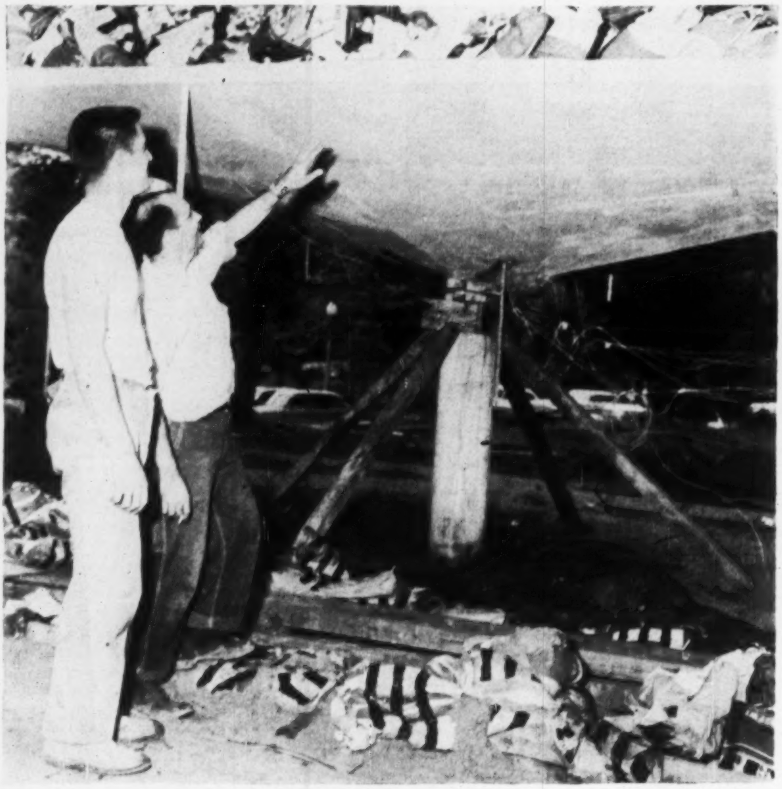

Students Design, Build and Test a Roof

Engineering students at Washington University, St. Louis, recently ended a four month test project by loading to destruction a 20 x 20 ft hyperbolic-paraboloidal roof shell of reinforced concrete. They had designed and built the structure during earlier stages of the program.

The shell was the inverted umbrella type, with a low center and elevated boundaries. Resting on a single center column of concrete 14 in. in diameter, it rose 29 in. to the underside of the edge beams.

Before burdening the roof to its ultimate capacity—which they accomplished with 50 lb sand bags—the student ran a series of load deflection tests. Deflections were measured at the corners and midpoints of the sides with two transits. Also, strain gages were placed on edge-beam reinforcing bars.

Designed for a uniform live load of 30 psf on its entire area and supported by a column designed for that load on half the roof area, the shell:

- Deflected less than ⅛ in. at the edges under 25 psf uniform load
- Deflected 1⅜ in. down on the loaded side, 1⅜ in. up on the unloaded side, due almost entirely to column deflection, under 65 psf load on half the roof
- Failed at 71 psf on half the roof by shearing of the dowels fastening it to the top of the column. There was no break of the shell itself.

Stiffening members for the shell were the edge beams, 3½ in. thick and 5 in. wide, and four beams radiating from the center of the shell to the midpoints of the sides. The radial members, reinforced with three No. 4 bars at top and bottom, tapered from 9 x 14 in. at the column to 3½ x 8 in. at the sides.

The shell itself was 1½ in. thick. It was reinforced diagonally with No. 3 bars 12 in. c-c in one direction and ¼ in. round bars 9 in. c-c in the other. Column reinforcement consisted of four No. 9 and four No. 7 bars running vertically, tied with No. 2 bars 12 in. c-c.

Oreste Sigillito and Henry Lembeck, senior engineering students, organized and directed the project, under sponsorship of Henry Reitz, acting chairman of the university's civil engineering department. Students devoted 350 working hours to complete the program.

MR. ENGINEER:

LET'S FACE THE FACTS . . .

How can an underground piping system be watertight when you can't *AIR TEST* it?

WITH

RIC-WIL

Test caps applied to unit ends for air testing full-welded conduit system.

During air test, conduit field welds are checked with soap solution.

Tested and ready for lowering long lengths.

YOU can AIR TEST your system...

The Ric-wil method of making full-welded field closures allows the installer to AIR TEST the system prior to completion and backfilling. This simple 15 lb. pressure test gives greater assurance of a tight, leak-proof system. It provides the finest practicable protection to the owner against an initial system failure ...and most important, the long range effects of water corrosion.

Ask a Ric-wil field representative for detailed information regarding Air Test procedure or write for catalog covering recommended field installation details . . . and remember, it pays to do it RIGHT the first time . . .

Quality Piping Systems . . .
. . . of Exceptionally High Thermal Efficiency
SINCE 1910

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PREFABRICATED **INSULATED PIPING SYSTEMS**
BARBERTON, OHIO
IN CANADA: THE RIC-WIL COMPANY OF CANADA LIMITED

Tru-Stop Brakes

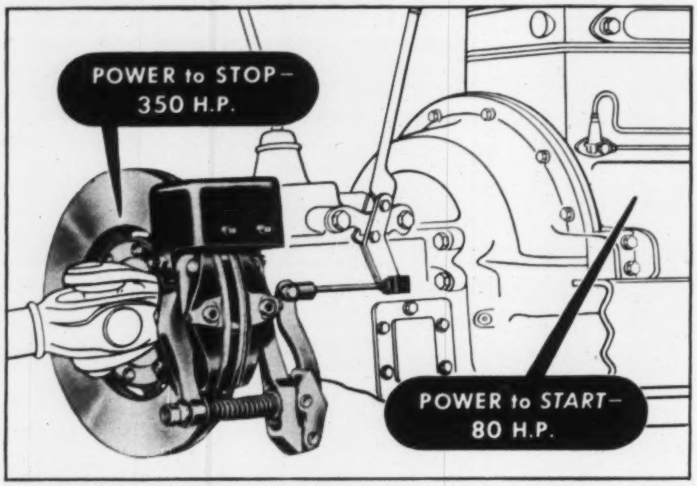
Meet Every Heavy-Duty Safety Requirement

OFFER POSITIVE PROTECTION AGAINST RUNAWAY OR PARKING ACCIDENTS—AT LOWEST COST

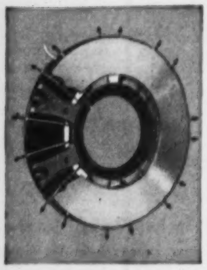
HERE IS WHY:

They have surplus power required for emergency service—no dangerous self-energizing

TRU-STOP Heavy-Duty Emergency Brakes are not only excellent parking brakes. They serve as a complete, independent and fully reliable braking system. Operating on the propeller shaft they enable the driver to continue on safely in the event of service brake failure. TRU-STOP brakes have the surplus braking capacity to be used *repeatedly* as an auxiliary to service brakes.

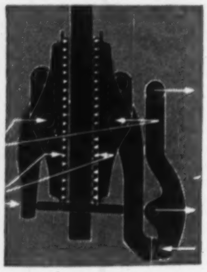


Brakes actually do more work than the engine in terms of horsepower Where it takes 80 HP to accelerate to 20 miles per hour, it takes 350 HP to make a safe stop from 20 miles per hour within required limits



Ventilated to throw off heat

Brake efficiency depends on ability to throw off intense heat—rapidly. Discs of TRU-STOP brakes are exposed to the air even during the braking operation. Ventilated design circulates air *between* the disc plates.



Give uniform brake pressure

Disc of TRU-STOP brakes is "squeezed" between the flat surface of the shoes. Effort applied to brake lever operates front and rear lever arms simultaneously. Pressure is exerted on the center of each shoe. Entire lining surface is in contact.

FOR SAFE, ECONOMICAL, HEAVY-DUTY BRAKING WITH MAXIMUM LIFE AND MINIMUM MAINTENANCE

TRU-STOP Brakes are used on a great variety of mobile and stationary equipment

SUCH AS—

- Motor cranes
- Road rollers
- Dump trucks
- Power dividers
- Cooling tower fans
- Oil well pumps
- Cold header presses
- Scrubbing machines
- Wire rope stranders
- Fork lift trucks
- Motor scrapers
- Tractors
- Graders
- Diamond core drills
- Electric locomotives
- Oil well servicing rigs
- Railway inspection cars
- Shapers
- Power take-offs
- Winches
- Motor shovels
- Tractor loaders
- Conveyors
- Hard rock drill positioners
- Mine locomotives
- Power presses
- Railway power ballisters
- Cable tool spudders
- Aerial tram cars
- Tension wire stringers

We will be glad to answer any questions or give you more detailed information about TRU-STOP Heavy Duty Emergency Brakes.

Send for

Catalogs DH-33 and DH-530

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BRAKES

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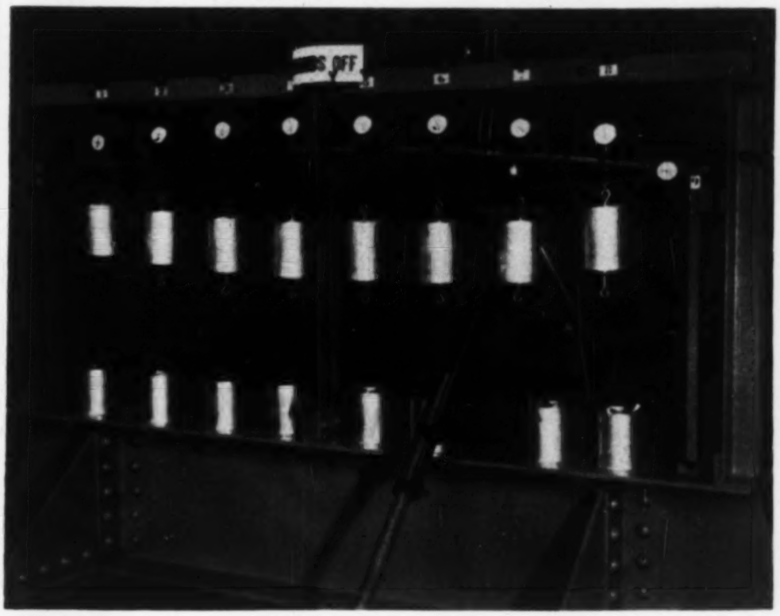

Hog-Braced Arch Proves Stable in Model Test

Stability of a long-span roof arch with down-curving tie cables has been demonstrated in model tests by engineers of John A. Roebling's Sons Corp.

Researchers in the company's bridge-division laboratory in Trenton, N. J., built and tested statically, under division chief engineer Blair Birdsall, a 1-to-20 scale model representing an arch 127 ft in span, with a rise of 4.26 ft at the center, and tied with cables reflecting the arch contour. Depression of the tie members, which act also as a catenary, to the desired ordinates was accomplished by vertical struts dividing the 6.35 ft long model into nine equal-length panels.

Dead load of 1,190 lb per lin ft and live load of 680 lb per lin ft were represented by weights suspended from the panel points. Rib and cable deflections and rib bending moments were measured under dead load and various live load conditions.

Applications of the unusual structure, according to Paul Chelazzi, Italian architect-engineer and Roebling consultant on suspended roof systems, would include roofs of hangars, warehouses, auditoriums and other large open buildings.

Solar Heated Home Nears Completion

A 9 room, $40,000 residence nearing completion at Denver, Colo., will be heated in part by solar energy. The solar heating system will provide from 60% to 75% of all heating demands in the home during the winter, fall and spring.

Two large heat collector units, each

Neenah
FOUNDRY COMPANY
construction castings
of sound quality... solid value

Patterns for
15,000 different Gray Iron Castings for
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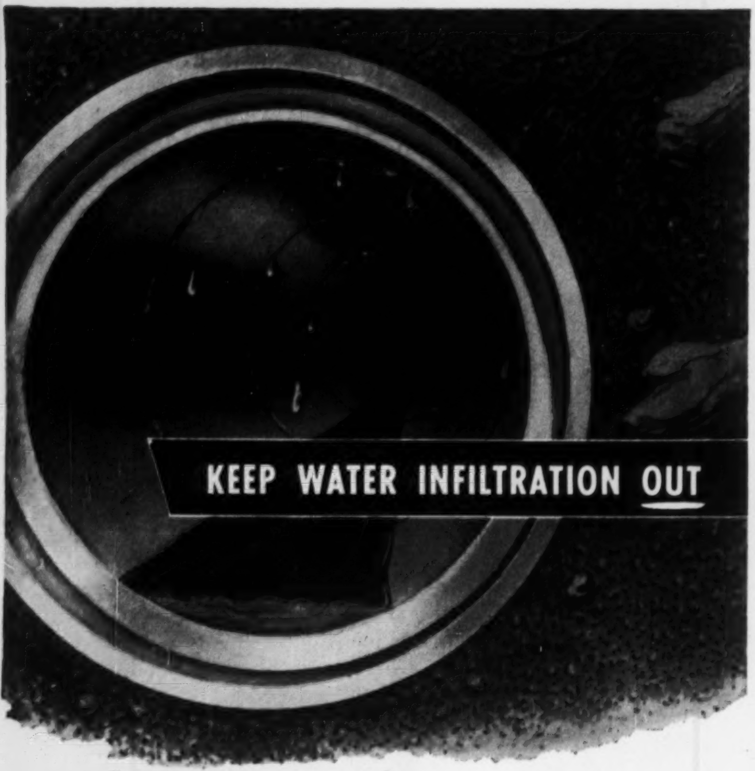

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non-porous joint packing

When ground water seeps through your sewer pipe joints, it can result in an overtaxed system, needless expense and labor.

ROPAX is a non-porous, adhesive joint packing designed to minimize this problem. It compresses and conforms snugly to the contour of the pipe bell, forming a solid seal against water passage.

KALKTITE®, Presstite's service-proved, cold-applied asphaltic joint cement, then forms a dense, tough, flexible seal that cuts infiltration to a minimum. It sets up internally, unaffected by hot, cold, wet or dry conditions.

WRITE for PRESSTITE CATALOG, describing 3-Step Sewer Joint Sealing System (including Presstite High-Bond PRIMER).

PRESSTITE SEALING COMPOUNDS

PRESSTITE-KEYSTONE ENGINEERING PRODUCTS COMPANY

KAP

A Division of AMERICAN-MARIETTA COMPANY
3784 CHOUTEAU AVENUE, ST. LOUIS 10, MISSOURI

consisting of 20 glass panels 6 ft long and 2½ ft wide, are located on the roof and tilted to the south to take advantage of the winter sunlight. The panels, set in aluminum frames, contain overlapping layers of glass, some of which are painted black.

Air, heated as it is blown through the panels, is circulated through room convectors as in any standard warm air heating system.

When the house is warm, an electrical control diverts the heated air from the roof collectors through two heat storage bins.

The heat storage bins are stack-like cylinders 18 ft high and 3 ft in diameter.

Egg size granite stones fill the cylinders. The warm air passing around the stones heats them to a maximum of 300 F. During the night, air is circulated through the storage bins and into the house.

During summer the sun heat is used only to heat water for household use. Any additional heat required during the rest of the year will be provided from a standard warm air furnace fired by gas.

The house is being built for George O. G. Lof, a consulting engineer on solar energy. James M. Hunter, Boulder, Colo., was the architect and Fred Keller Construction Co., Denver, the general contractor.

Two Conferences to Report On Building Research Gains

Two important building research conferences are scheduled for this week and the latter part of this year.

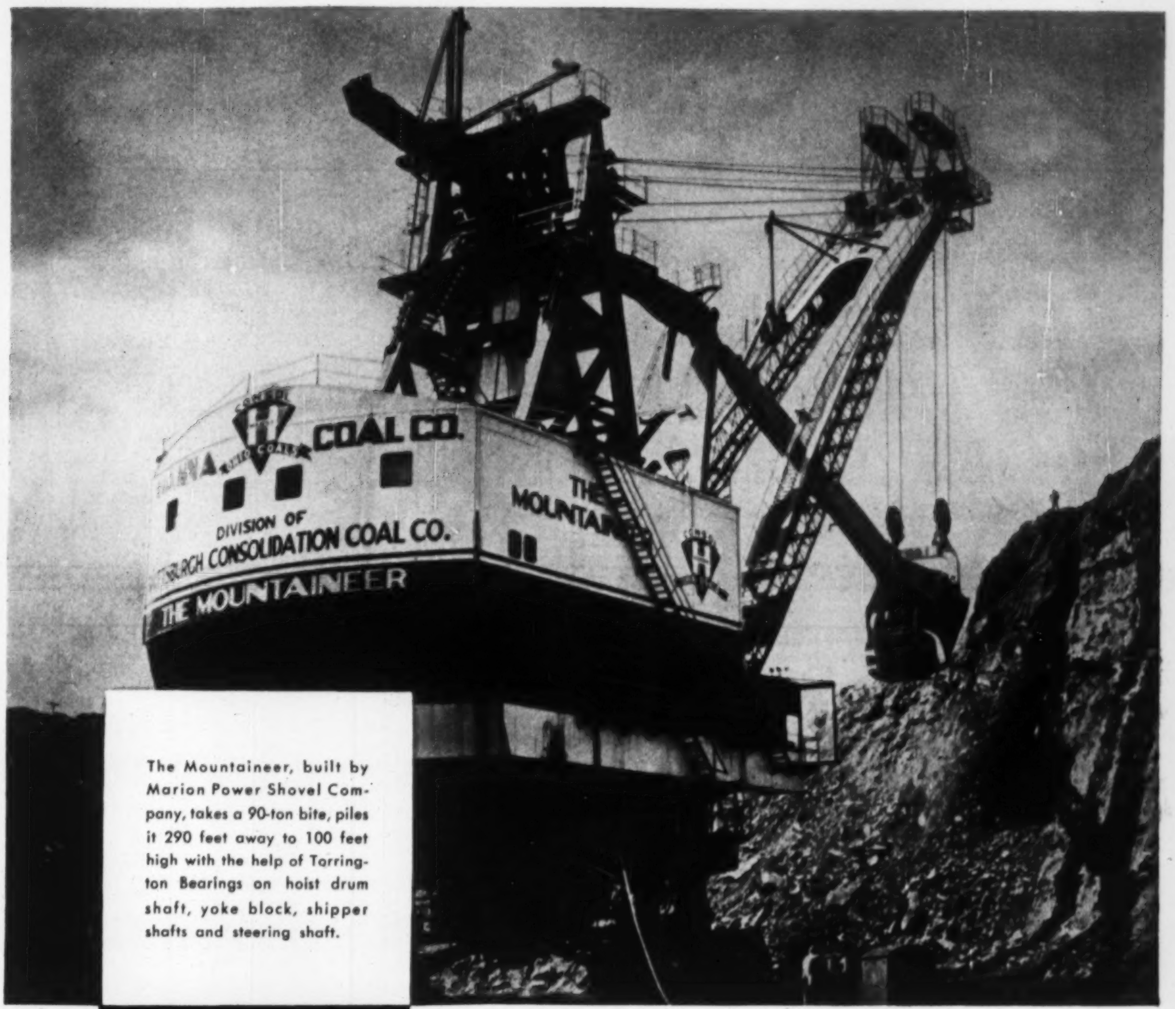
A two-day environmental control conference, to be held under the joint sponsorship of the University of California at Los Angeles and the Institute of Heating & Air Conditioning Industries, will attempt to integrate knowledge of indoor climate control.

The Indoor Climate Design Institute, as the meeting is called, is being held at UCLA Sept. 12-13. The conference will report on and study methods of protecting indoor climate against extremes of weather and growing air pollution.

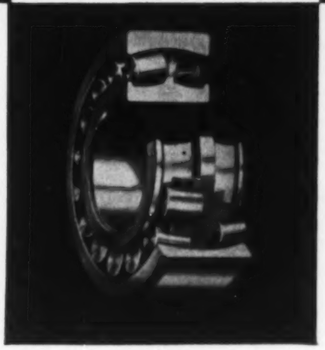
A Building Research Institute conference, to be held in Washington, D. C., Dec. 4-5, will report on "Adhesives and Sealants in Buildings."

Purpose of the conference is to present to a cross section of the building industry the latest technical knowledge and developments on these materials.

Many kinds of adhesive and sealant materials will be identified, the nature of their use explained, and specific applications reported on at the meeting.



The Mountaineer, built by Marion Power Shovel Company, takes a 90-ton bite, piles it 290 feet away to 100 feet high with the help of Torrington Bearings on hoist drum shaft, yoke block, shipper shafts and steering shaft.



World's Mightiest Lift Transmitted Through Torrington Bearings

The Mountaineer, world's largest power shovel, transmits its mighty lifting power — 250 tons — through two Torrington Spherical Roller Bearings on the hoist drum shaft.

Here these bearings operate smoothly at full capacity despite shaft deflections. Four other Spherical Roller Bearings are used in the yoke block to eliminate need for precise alignment of separately bored parts. In all applications, advantages of accurate roller-to-race conformity and positive roller guidance through the integral center flange contribute to long, maintenance-free service life.

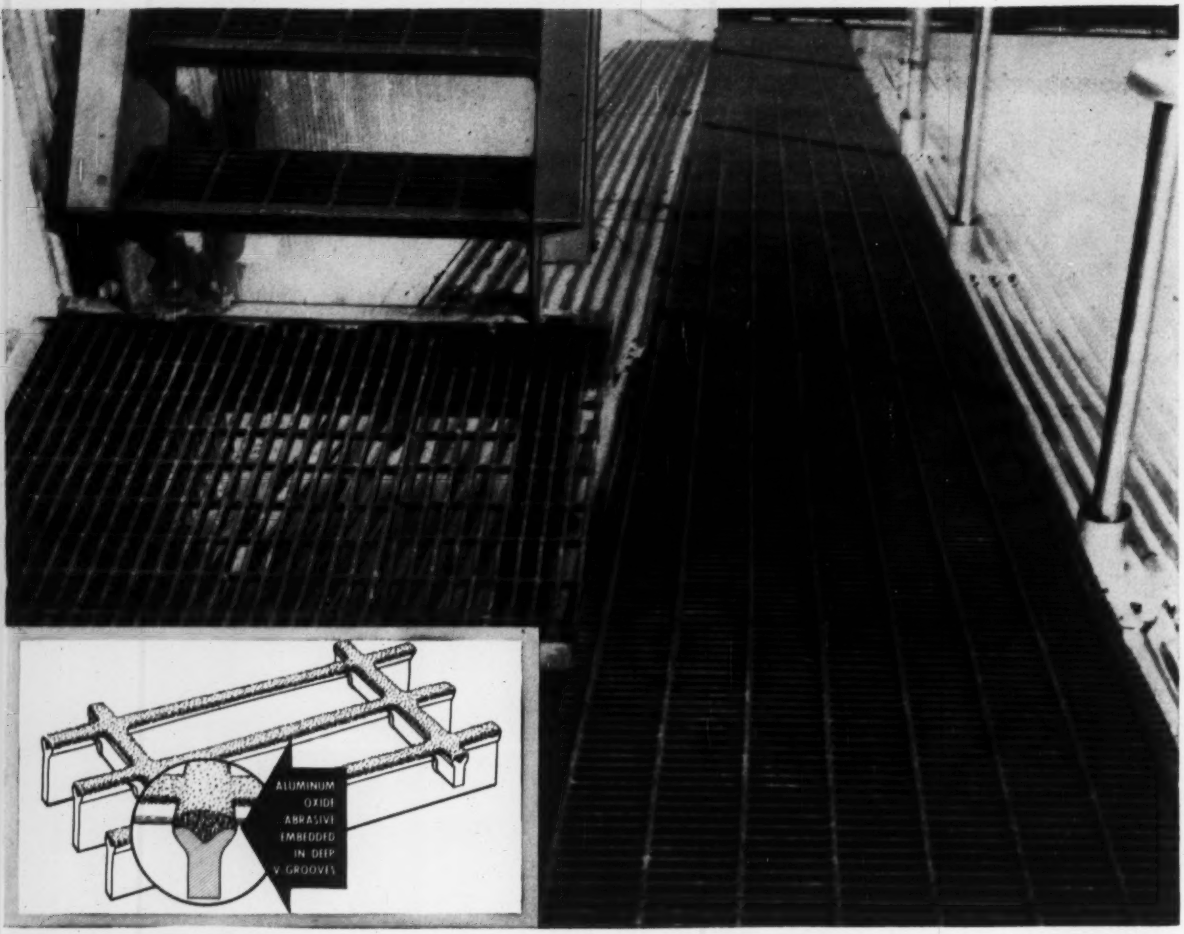
To carry thrust of helical gears on shipper shafts and of the steering screw shaft, four Torrington Roller Thrust Bearings are used in each of these assemblies.

Not only in power shovels, but in all kinds of heavy-duty equipment, Torrington Bearings have proved their efficiency and long service life. *The Torrington Company*, South Bend 21, Ind. — and Torrington, Conn.

TORRINGTON BEARINGS

District Offices and Distributors in Principal Cities of United States and Canada

SPHERICAL ROLLER · TAPERED ROLLER · CYLINDRICAL ROLLER · NEEDLE · BALL · NEEDLE ROLLERS · THRUST



RELGRIT® provides safe footing on sharply sloping roofs at AEC St. Louis Plant

Reliance Relgrit gratings and treads are providing safe access to stacks, filters and other equipment across the 18° sloping roof of the AEC Feed Material Plant near St. Louis. The abrasive surface of Relgrit was picked as a truly non-skid surface for ramps, stairways and walks leading to equipment which had to be serviced frequently.

The top surfaces of the bearing bars have 1/8" deep V-grooves in which is embedded aluminum oxide abrasive grains in a hard resin. The material is not affected by water, oil, gasoline, greases, or the most commonly used acids, alkalis and other chemicals, which gives it a long service life under the most severe conditions. If you have operations in which the floors become oily, greasy, wet, or slick from any other cause, Relgrit can provide safe footing at very low cost. Write for complete information and samples.

*you can't slip on Relgrit**

*Patent applied for

Reliance Steel Products Company

P. O. Box 510-A, McKeesport (Pittsburgh District), Pa.

Relgrit Abrasive Gratings and Treads • Lightweight Bridge Flooring
Steel, Stainless and Aluminum Grating • Steel Mill Equipment

Unit Prices

Sewers and Paving Awarded In City of Pontiac, Mich.

Concrete paving with integral curb totalling 38,508 sq ft, 25,371 cu yd of excavation and both combined and storm sewers have been awarded at $262,562. G. Toccalino & Sons, Detroit, took the job on a low bid 10% under the engineer's estimate and 4½% under the next bid. Five companies bid on this work for the Department of Public Works and Service, Pontiac, Mich., Lewis M. Wrenn, city engineer.

The city furnishes manhole and catch basin castings; the contractor furnishes all other materials. Concrete must test at 3,500 psi in 28 days.

The five bidders included:

1C	G. Toccalino & Sons, Detroit, Mich	$262,562
2	Oak Construction Co., Royal Oak, Mich	274,496
5	John Longo & Co., Detroit, Mich	320,308
EE	Lewis M. Wrenn, City Engr, Pontiac, Mich	292,269

Bids: 7-1-57 Items	Unit	Quantity	Unit Prices 1C	 2
Excavation	cy	25,371	$0.60	$0.60
Sand or gravel borrow	cy	2,642	1.00	2.00
Conc, 6:8:6, pave, with				
integ curb 37′ wide	sy	38,508	3.39	3.54
header 6″x12″	lf	422	1.00	1.00
walk replace, 5′	sf	6,600	0.50	0.55
Headwalls & rip-rap	ea	2	250.00	400.00
Walk & curb on bridge, remov & repl incl 2 ducts & sandfill	lf	194	3.00	4.00
Conc, bit resurf crse, 2″	t	43	15.00	16.00
asph surf crse, 2″	sy	327	3.00	2.40
Exist pave remov	sy	37	1.00	5.00
Rd gravel, 8″ loose, 6″ compact	sy	607	0.70	0.80
Sewer comb C-76-RCP				
cradled 78″	lf	150	110.00	108.00
storm RCP, C-76-I 54″	lf	50	33.00	30.00
42″	lf	60	25.00	24.00
C-75 36″	lf	343	13.30	13.00
30″	lf	595	11.30	11.00
24″	lf	1,125	9.70	10.00
C-76-II 24″	lf	282	13.00	16.00
C-75 21″	lf	315	7.10	9.00
cradled 21″	lf	723	17.15	16.00
18″	lf	288	6.40	7.00
C-14 15″	lf	121	6.80	6.90
C-75 15″	lf	695	5.10	6.50
comb VSP, C-200 15″	lf	228	10.95	9.00
12″	lf	228	10.30	7.00
storm C-14 12″	lf	575	4.25	5.50
RCP, C-75 12″	lf	384	5.90	6.25
comb VSP, C-200 10″	lf	228	8.90	5.50
Inlet RCP, C-75 12″	lf	1,584	5.00	4.00
tp A riser C-14 12″	lf	20	15.90	10.00
Riser tp B VSP C-13 6″	lf	20	31.00	27.00
Sewer stub VSP C-200 6″	lf	15	31.70	25.00
Std manholes	ea	31	200.00	200.00
deep	ea	4	700.00	750.00
inlet	ea	2	330.00	350.00
Std inlets	ea	73	130.00	180.00
Adjust manholes	ea	35	15.00	25.00
inlets	ea	10	15.00	25.00

Completion Schedule: 7-20-57 to 11-15-57
Liquidated Damages: $50.00 per day

Plate Girder Viaducts Go For Parkway in Virginia

Two new steel plate girder viaducts will carry George Washington Memorial Parkway over Glebe Road and Pimmit Run in Arlington and Fairfax Counties, Va. The Bureau of Public Roads, U. S. Department of Commerce, let the $1,137,360 contract to Wright Contracting Co., Columbus, Ga., on a low bid 4% under the engineer's estimate and 8% under the next bid. H. J. Spelman is regional engineer.

The 4 span viaduct uses these continuous spans: 130-150-150-105 ft. The 3 span viaduct uses continuous spans of 119-132-109 ft. The overall length of both is 895 ft for which the structural steel went under contract on a lump sum bid of $700,000.

The job is 3¾ miles from the nearest railhead. Class AA concrete takes 6½ bags of cement per cu yd. Cast iron pipe must meet Fed. Spec. WW-P-401.

The bidding included:

1C	Wright Contracting Co., Columbus, Ga. & Odenton, Md	$1,137,360
2	Case Construction Corp., Mt Airy, Md	1,236,097
7	Gunnell Constr. Co. Inc., Washington, D. C.	1,458,638
EE	Bu of Public Roads, Arlington, Va.	1,186,953

Bids: 6-12-57 Items	Unit	Quantity	Unit Prices 1C	 2
Excavation, uncl	cy	1,000	$0.50	$4.00
for structures	cy	4,500	5.00	12.00
Stone or grav sheathing	cy	65	10.00	10.00
Concrete cl AA	cy	4,600	56.00	72.00
Emulsified carbon black	lb	2,500	0.42	0.30
Steel, reinf	lb	870,000	0.14	0.15
structural	ls	job	700,000	685,000
CI soil pipe, 4″	lf	30	5.00	2.00
Dampproofing	sy	200	3.60	1.50
Aluminum bridge rail	lf	2,055	13.65	13.00
Loamy topsoil f&p	cy	100	5.00	5.00
Seeding	unit	15	15.00	10.00
Fiber or met conduit, 4″	lf	2,065	1.75	1.10

Walker Field to be Rebuilt In Colorado Rockies

White Water Sand & Gravel Co., Grand Junction, Colo. will reconstruct the existing runway at Walker Field, Grand Junction, to 150 ft by 5,400 ft. Thompson Electric Service, Salt Lake City, will install high intensity lighting for $34,198. Work is for the city, W. F. Turney & Assoc., Santa Fe, N. Mex. are the engineers. The contracts' total, $333,178, ran 9½% over the estimate.

Wage rates on the job include tractor operators at $2.75 per hour, common labor at $1.95.

The bidding ran like this:

1C	White Water Sand & Gravel Co., Grand Junction	$298,980
2	Carl V. Hill, Greeley, Colo	313,279
3	Peter Kiewit Sons' Co., Denver, Colo	339,063

Runway

Bids: 8-1-57 Items	Unit	Quantity	Unit Prices 1C	 2
Excavation	cy	86,700	$0.75	$1.00
Sub-base	cy	27,200	2.50	2.50
Crushed aggregate base	cy	18,400	3.40	2.70
Bituminous prime coat	gal	39,000	0.20	0.20
surface course	t	10,500	5.75	6.00
material	gal	164,000	0.18	0.20
Ducts, 2-way	lf	1,113	4.00	3.50
4-way	lf	312	4.00	4.50

Lighting, High Intensity

1C	Thompson Electric Co., Salt Lake City	$34,198
2	Wesco Electric Co., Grand Junction, Colo	37,887
3	White Water Sand & Gravel Co., Grand Junction	39,480

Cable trench	lf	17,120	$0.16	$0.15
underground	lf	22,240	0.2465	0.36
Cable duct, underground	lf	1,500	0.32	0.39
Transf vault equip	ea	1	9,170	11,904
Control Wiring	ea	1	2,070	1,183
Lights, runway	ea	68	182.52	174.10
taxi guide	ea	2	198.50	179.10
threshold	ea	16	90.50	90.25

Completion Time: 90 working days
Liquidated Damages: $50/day

Sound Powered TELEPHONES work in any emergency because they NEED NO CURRENT

If everything else fails, these phones will still provide trouble-free performance over a distance of many miles. Speaking is activated solely by the sound energy of the voice while ringing is accomplished by a hand-driven magneto. For permanent installation on industrial projects or for temporary use on construction work where they can be moved as the job progresses.

INDOOR AND OUTDOOR MODELS

In selective or common ringing and semi-selective or common talking. Cost of upkeep is negligible.

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ELGOOD HYDRAULIC & MECHANICAL JACKS to 600 ton capacity

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Materials and Labor Prices

Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 22; Next, Sept. 19
- Clay Products, Lime, Plaster, Paint; Roofing: Last, Aug. 29; Next, Sept. 26
- Wage Rates, Building Board, Lath, Insulation: Last, Aug. 29; Next, Oct. 3
- Cement, Aggregate, Ready-Mixed Concrete, Asphalt: Last, Sept. 8; Next, Oct. 10

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.275	$5.10	$5.425	$12.25	......	$110.50	$130.00	$6.975	$9.75	$6.60	......
Chicago Area	5.275	5.10	5.425	12.25	$6.225	110.50	130.00	6.975	9.75	6.60	......
Pittsburgh Area	5.275	5.10	5.425	12.25	6.225	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.275	5.10	5.425	12.25	6.225	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	....	....	5.425	12.25	6.225	......	......	......	......	......	14.75
Youngstown Area	......	......	5.425	......	......	......	......	......	9.75	......	......
Geneva	5.275	5.10	......	......	......	......	......	......	......	......	......
Los Angeles	5.975	......	6.125	......	6.225	......	......	......	9.75	6.75	......
Pueblo	......	......	......	......	......	......	......	69.75	9.75	6.60	......

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATHk Std. ribbed 3.4 lb.
Atlanta	$8.74	9.25	$8.43'	$52.00	$57.00
Baltimore	9.45	8.45j	....	42.00	46.50
Birmingham	8.64t	8.60t	8.60t	66.25p	71.00p
Boston	9.59s	8.25	8.25	46.50	51.00
Chicago	8.79E	6.91gu	6.91gu	52.00‡	63.00‡
Cincinnati	9.18ak	9.08rs	....	43.50mn	48.00mn
Cleveland	9.01	6.89c	....	44.50‡	49.00‡
Dallas	10.25	8.85	8.85	61.00	66.50
Denver	9.82	8.95e	....	57.00n	63.00n
Detroit	9.18	7.15g	....	45.00	49.50
Kansas City	9.31a	8.10	....	49.00	60.00
Los Angeles	9.35fd	7.35	....	58.50	64.50
Minneapolis	9.08d	9.26b	9.26b	41.50	46.00
Montreal	8.25-900iC/8.30-8.70A	7.75/9.95F	7.75/9.95F	65.00h	70.20h
New Orleans	....	7.70gks	....	45.50	50.00
New York	9.15s	8.35dy	8.35y	50.50n	57.00no
Philadelphia	8.80/9.00	7.80/8.00	....	42.50‡	47.00‡
Pittsburgh	8.64t	6.75t	....	46.00‡W	49.50‡W
St. Louis	9.10s	8.45c	8.45c	61.00l	62.00l
San Francisco	9.50	9.45j	....	51.00	54.00
Seattle	9.80d	8.85e	....	62.00nr	68.00nr
Toronto	8.85*	7.85	7.85	59.50nq	62.75nq

Quantity extras, per cwt: under 100#, +$9; 100–399#, +$6; 400–999#, +3.50; 1000–1999#, +1.00; 2000–4999#, base price; 5000–9999#, −10¢; 10,000–19,999#, −30¢; 20,000–29,999#, −50¢; 30,000# and up, −70¢

EXTRAS, per cwt—♦Quantity (applies to LCL shipments only): under 1,000#, +$1.80; 1000–1999#, +$1.50; 2000–4999#, +$1.20; 5000–9999#, +90¢; 10,000–19,999#, +60¢; 20,000–29,999#, +30¢; 30,000–39,999#, +10¢; 40,000# & up, none. ♦Size†: #2 +$2.50; #3 +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ♦Bending: heavy, +90¢; light +$2.20 (except in New York City and surrounding metropolitan area where bending must be done on the job). ♦Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–499 tons, +50¢ but not over $4500; 75–199 tons, +65¢ but not over $2000; 20–74 tons, +75¢ but not over $975; 5–19 tons, +85¢ but not over $300; under 5 tons, +$1.00 but not over $85. Min. charge $25. Design only: +60¢.

WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill

4 × 16 in., No. 8 & 10 wires— Joliet, Ill., Donora, Pa., Monessen, Pa. $2.98

4 × 12 in., No. 8 & 12 wires— Joliet, Ill., Donora, Pa., Monessen, Pa. $2.62

6 × 6 in., No. 6 & 6 wires— Joliet, Ill., Donora, Pa., Monessen, Pa. $4.17

•‡ Delivered. •* Aver. of Canadian & American. •a 2000–9999# •b 10,000–15,999#, fob city •c 20 tons or over •d 10,000–19,999# •e Intermediate struct'l •f Incl. delivering in free zone •g CL •h list price; dominion tax exempt; add provincial and municipal taxes •i add dominion, provincial and municipal sales taxes •j intermediate and hard grade •k fob city •l delivered; contractor to do unloading •m copper alloy •n LCL •o asphalt coated •p del. of 500 sq. yd. or more. •q 3 lb •r 2% off for cash •s 2,000–4,999# •t add 15¢ del. •u add 6.25¢ switch •v incl 15¢ del. •w truck lots. •x add 5¢ switch •y add 15¢ del. •z add 10¢ del. •A American made. •C Canadian made. •D ½% for cash. •E 30,000# or over. • F Federal tax exempt.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	CLAY‡SEWER PIPE Per ft., delivered ASTM C13-55 24 in. 8 in.	CLAY‡SEWER PIPE ASTM C13-55 36 in. 12 in.	CLAY‡SEWER PIPE ASTM C200-55T 6 in. 24 in.	CLAY‡SEWER PIPE ASTM C200-55T 8 in. 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTM C4-55 6 in.	CLAY DRAIN TILE† 8 in.	CONCRETE SEWER PIPE§ Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPE§ 24 in.
Atlanta	130.5	$1.64	$2.68	$.53	$.98	$.....	$.....	$277.00s	......	$1.55m	$4.40m
Baltimore	140.1	1.64	2.46	.665	1.28	5.08s	12.71	187.80	$289.20	1.01	2.75m
Birmingham	125.8	1.64	2.68	.46	.86	3.70w	10.37w	260.00‡	440.00‡	1.25m	2.75
Boston	143.0	1.66	2.46	.812qrt	1.566qrt	6.525qrt	......	215.40r	330.60r	1.56mg	3.47mg
Chicago	140.9	1.64	2.46	.93m	1.78m	7.52m	21.16m	220.00n	330.00n	1.30	4.00
Cincinnati	135.5	1.66	2.55	.665t	1.2825t	4.905t	12.505	240.00	370.00	.85m	3.25m
Cleveland§	141.7	1.66	2.55	.595s	1.1475s	4.725t	12.4025t	155.40m	240.60m	.85m	3.50m
Dallas	137.8	1.66	2.80	.439	.799	4.00b	9.17b	......	....	1.04	2.10
Denver	148.2	1.73	2.80	.47n	.84n	3.73n	......	......	....	.75m	2.75m
Detroit	142.1	1.66	2.55	.90n	1.70n	6.80n	18.50n	164.80m	254.20m	1.10	4.05
Kansas City	138.5	1.66	2.55	.61	1.105	4.47	11.56	275.00	485.00	.95	2.90
Los Angeles	148.6	1.73	2.46	.74l	1.61l	6.42l	15.36l	360.00l	530.00l	1.12	3.32f
Minneapolis	149.9	1.68	2.68	.86mo	1.55mo	6.70mo	......	......	......	1.76h	4.74h
Montreal	.....	....	....	1.07u	1.90u	6.80u	12.50u	288.00	545.00	1.17h	3.11j
New Orleans	133.3	1.64	2.68	.528	.983	5.10	......	210.50p	468.00#	.85	2.90
New York	138.5	1.66	2.46	1.02	1.94	7.56	19.48	......	......	1.50	3.00
Philadelphia	137.8	1.64	2.46	.68	1.31	5.13s	14.25s	300.00‡	350.00‡	1.75h	4.20h
Pittsburgh	142.9	1.66	2.46	.595m	1.15m	4.73m	12.40m	190.00	295.00	1.45z	3.50z
St. Louis	136.9	1.64	2.55	.59	1.08	4.45	10.80	180.00l	380.00l	1.45il	3.10hl
San Francisco	148.6	1.73	2.46	.78d	1.69d	6.72d	16.36d	320.00l	560.00l	1.05m	3.30m
Seattle	149.0	1.73	2.46	.67b	1.33b	6.84	......	220.00c	......	1.10k	3.25k
Toronto	.....	....	....	.76	1.425	6.00	......	157.00	280.00	1.02	3.57

•WROUGHT STEEL PIPE

(Full standard weight)

Discount from list; see footnote

Mill	2½ & 3 in., Butt Weld+ Black %	2½ & 3 in., Butt Weld+ Galv. %	3½ to 6 in., Lap Weld+ Black %	3½ to 6 in., Lap Weld+ Galv. %
Lorain, Ohio	16.75	0.50	....	....
Aliquippa, Pa	16.75	3.00	6.25a	+8.00a
Sparrows Pt., Md.	14.75	1.50	0.25a	+16.50
Benwood, W. Va	16.75	0.50	....	....
Youngstown, O	16.75	0.50	6.25	+5.25a
Indiana Harbor, Ind.	15.75	0.50	10.50ab	+11.50a
Sharon, Pa.	16.75	0.50	....	....
Wheatland, Pa	16.75	0.50	6.25a	+10.50a
Etna, Pa	16.75	3.00	4.50d	+9.75d
Fontana, Calif.	3.25	+13.00	+7.25ab	+24.00ab

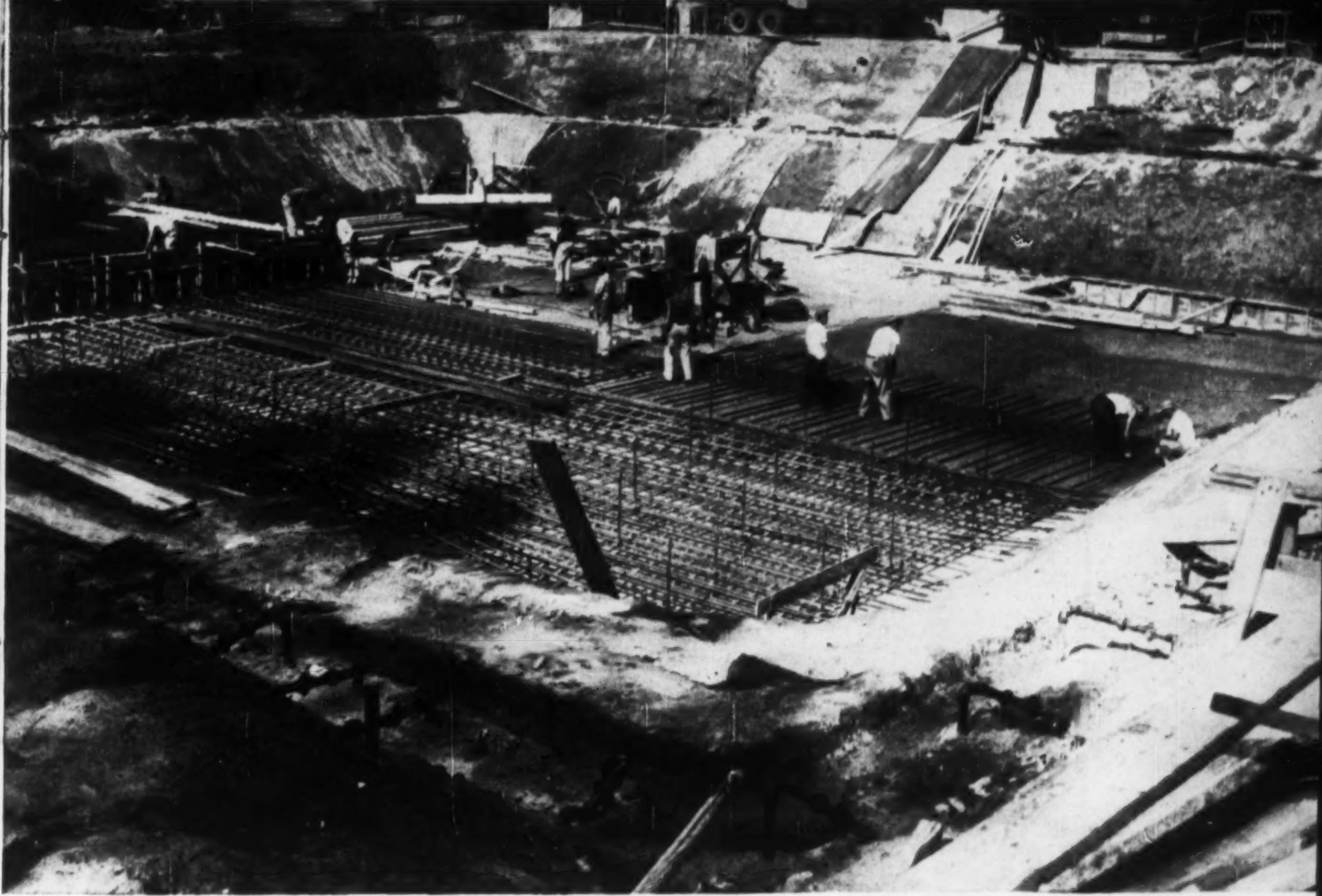
+Threaded and coupled. a 3½ to 4 in. b Continuous weld. d 5 and 6 in.

•† Extra quality •§ extra strength. •‡ delivered. •a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. •b Extra strength. •c 4-in., $130. •d SS361-A •e 30-in. •f 21 in. •g culvert pipe; reinf., ASTM C 75-56 •h reinf., ASTM C 75-54 •i reinf., ASTM C 76-54 •j centrispun; no standard specs. in Canada. •k 2% cash •l fob plant •m truck del. •n LCL del., fob truck •o listed price based on LCL (no min.) •p freight allowed to destination in city •q ASTM C 13-40 •r CL fob origin, freight allowed •s 2 ft lengths •t 3 ft lengths •u CESA A 60-1941 •v standard strength •w SS; add 20% for d.s. •x fob city # correction

* **WROUGHT STEEL PIPE:** Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight, 3% transport tax for destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 65.54, galv., + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld —2½ in. to 3 in. black + 67.95 galv. + 95 77; 4½ in. to 6 in. black + 64.74 galv. + 90.66 Add freight rates plus 3% transportation tax to get destination price.

IBM FOUNDATION STARTS EFFICIENTLY IN THE DRY . . .



General Contractor: A. E. Stephens Co., Springfield, Mass.
Pumping Contractor: American Dewatering Corporation, New York
Consulting Engineers: Moran, Proctor, Mueser & Rutledge, New York

A MORETRENCH WELLPOINT SYSTEM controls 12′ of water in varved layers of silt and clay while the contractor constructs foundation for International Business Machine Corp's. new office building in Hartford, Connecticut.

Pumping started at 4:30 PM on June 19th. On June 22nd they were excavating in the dry.

The cost of efficient pumping is *lower* than you think. On your next wet job, find out in how many ways Moretrench Wellpoint Equipment can save you money. Our nearest office is at your service.

MORETRENCH CORPORATION

90 West St.
New York 6

4900 S. Austin Ave.
Chicago 38, Illinois

7701 Interbay Blvd.
Tampa 9, Florida

315 W. 25th St.
Houston 8, Texas

Rockaway
New Jersey

Western Representative: Andrews Machinery of Washington, Inc., Seattle 4, Washington
Canadian Representative: Geo. W. Crothers Limited, Toronto, Ontario
Brazilian Representative: Oscar Taves & Co., Ltd., Rio de Janeiro

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, S. N. NOLAN, Reports
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† R. I., **Quonset Point**—RUNWAYS—BA 9/17—Pub. Wks. Office, First Naval Dist., Bldg. No. 438, U. S. Naval Air Station, resealing and remarking runways and taxiways at U. S. Naval Air Station, NBy 16106, Spec. No. 16106/57. CD 8/28/56.

HEAVY CONSTRUCTION—LB & CA

MASSACHUSETTS — Commonwealth of Mass., Dpt. P. Wks,. 100 Nashua St., Boston,

Mass.—**Rufo Constr. Co. Inc.**, 311 Washington St., Brighton, Mass., LB **$283,664**, est. $262,885, Chapter 90 Hy. work, Commonwealth Ave., Allston.

Mass.—**F. & G. Constr., Inc.**, 140 North Quinsigamond Ave., Shrewsbury, Mass., LB **$87,620**, est. $100,974, Chapter 90 Hy. Work, Grove St., North Worcester, Bids Aug. 27. CD 8/14.

Pittsburgh Des Moines Steel Co., 160 Broad St., Newark, N. J., LB **$49,500**, est. $55,000, furnish, erect 660,000 gal. steel standpipe-water, CANTON, MASS. Town, Bd. Selectmen, Town Hall, Canton, Mass. Bids Aug. 27.

Smith Bros., 19 Vernon St., Somerville, Mass., CA **$100,000**, site work, utilities, incl. roads, water, sewers and site work, at Wellington Circle Commercial Shopping Center, MEDFORD, MASS. Owner, c/o Harold A. Rudnick, 65 Commonwealth Ave., Boston, Mass. Summer Schein, 271 Huntington Ave., Boston, Mass., archt.

Olson & Appleby, Inc., 222 Union St.; New Bedford, Mass., CA **$75,343**, est. $80,000, field house and utilities, Sargent Field-Hunter St., NEW BEDFORD, MASS. City, Supt. Bldgs., Municipal Bldg., New Bedford, Mass. CD 8/12.

P. & M. Constr. Co., Inc., 617 Plymouth St., Abington, Mass., CA **$153,000**, est. $150,000. circulating water structures, Spec. No. 56100-123, TAUNTON, MASS. City, Municipal Light Plant, 55 Weir St., Taunton, Mass. Westcott & Mapes, Inc., 109 Church St., New Haven, Conn., engr.

U. S. Pipe & Foundry Co., 250 Stuart St., Boston, Mass., CA **$125,792** (3 bidders) c.i. pipe and fittings, HARTFORD, CONN. Metropolitan Dist., 115 Broad St., Hartford, Conn. CD 10/13/50.

BUILDINGS—LB & CA

Barr & Barr Inc., 501 Fifth Ave., New York, N .Y., CA **$800,000**, HOSPITAL LABORATORY alterations, 13-25 Harvard St., BOSTON, MASS. New England Center Hospital, 171 Harrison Ave., Boston, Mass., McKim, Mead & White, 101 Park Ave., New York City, N. Y., archts.

D. Guschov Co., Pemberton Square, Boston, Mass., LB **$336,300**, est. $350,000, ELEMENTARY SCHOOL, Lincoln Rd., LINCOLN, MASS. Town, Elementary School Bldg. Comn., Schol Dpt., Lincoln, Mass. CD 8/12.

▲ **Walsh Bros.**, 150 Hampshire St., Cambridge, Mass., CA **$1,500,000**. MONASTERY, PEABODY, MASS., Roman Catholic Diocese Boston Chancery, 1 Lake St., Brighton, Mass. Bids Aug. 22. CD 8/13.

Carl G. Peterson, 337 Park Ave., Naugatuck, Conn., CA **$100,000**. STORAGE, NAUGATUCK, CONN. U. S. Rubber Co., Naugatuck Chemical Div., Elm St., Naugatuck, Conn. Awarded Aug. 26.. CD 12/3.

Bregman Constr. Corp., 250 E. 43 St., New York, N. Y., CA **$841,111**. West Side Elementary SCHOOL, Highland Ave., WALLINGFORD, CONN. Town, Town Hall, Wallingford, Conn. Bids July 29, awarded Aug. 26. CD 8/13; under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

New York—BA 9/17—Bd. Water Supply, 120 Wall St., New York, Zone 7, Contr. 463, sinking and developing wells and pumping ground water at site of proposed Connonsville Dam in Town of Deposit. Plans deposit $5. CD 1/27/50. New York, N. Y.

† **New York**—BA 9/19—U. S. Eng., foot of Bridge St., Buffalo, N. Y. for the St. Lawrence Seaway Development Corp., marine base, St. Lawrence Seaway, St. Lawrence River, CIVENG-30-023-57-72. CD 9/9/54.

† N. Y., **Brooklyn**—RESURFACING—BA 9/24—Dist. Wks. Office, Third Naval Dist., Federal Office Bldg., 90 Church St., New York; Zone 7, resurfacing Runway 6-24, U. S. Naval Air Station, Floyd Bennett Field, NBy 12089, Spec. 12089/57. Plans deposit $25.

N. Y., **Jackson Heights**—AIRPORT IMPRVS.—BA 9/24—The Port of New York Auth., 111 Eighth Ave., New York, Zone 11, Contr. IGA-340.001, storm water diversion sewer; Contr. LGA-320.003, aircraft and vehicular parking areas, LaGuardia Airport. Plans deposit $30 each. CD 6/24.

† **New York**—BA About 9/26—U. S. Eng., foot of Bridge St., Buffalo, Zone 7, local flood protection, Marsh Creek Genera, Serial No. CIVENG-30-023-57-88.

Pa., **Warren**—BA 10/2—At office Borough Manager, Warren Borough Sanitary Auth., Municipal Bldg., sewage facilities, incl. sewage treatment plant with appurtenant constr., sewage diversion of weir manholes, force main and gravity sewer connections Pumping Stations No. 1 and No. 2 and appurtenant constr. incl. Contr. 1, sewage treatment plant, general construction; Contr. 2, plumbing work; Contr. No. 3, electrical work; Contr. No. 4, heating work; Contr. No. 5, sewer facilities; Contr. No. 6, Sewage Pumping Station No. 1; Contr. No. 7, Sewage Pumping Station No. 2, and Contr. No. 8, Conewango Creek Crossing and Allegheny River force main crossings. Plans deposit $35. The Chester Engineers, 601 Suismon St., Pittsburgh, Zone 12, engrs. CD 5/27/52.

† **New York**—BA On Or About 10/22—U. S. Eng., foot of Bridge St., Buffalo, Zone 7, for the St. Lawrence Seaway Development Corporation, aids to navigation South Cornwall Channel Section, St. Lawrence Seaway, St. Lawrence River, CIVENG-30-023-58-14. CD 9/9/54.

N. Y., **Syracuse**—BA 10/24—Robert W. Wollinger, co. purch. agt., County Office Bldg., 600 S. State St., Zone 2, sludge digestion units, Metropolitan Syracuse Treatment Plant District, Onondaga Co., incl. Contr. No. 2, general construction; Contr. No. 3, heating and ventilating; Contr. No. 4, electrical work; Contr. No. 5, plumbing, for Onondaga P. Wks. Comn. Plans deposit $50. O'Brien & Gere, 400 E. Genesee St., Zone 2, consult. engrs.; adv. ENR 9/12. CD 10/27/44.

BUILDINGS—BA

Pa., **Polk**—WAREHOUSE—BA 9/25—General State Auth., 19 and Herr Sts., Harrisburg, storage warehouse, Polk State School, $480,000. Plans deposit $10. A. F. Jones, c/o owner, ch. engr., and Trefey Eng., Box 230, Butler, engrs. CD 2/15.

▲ D. C., **Wash.**—CLASSROOM, etc.—BA 9/26—General Services Admin., P. Bldgs. Service, 7 and D Sts. S. W., Zone 25, classroom and laboratory bldg., Gallaudet College, Proj. 49217. Plans deposit $25. CD 10/26.

▲ N. Y., **New York**—LIBRARY, etc.—BA 10/8—Bd. Higher Educ., Hunter College Business Office, 695 Park Ave., Zone 21, library, classroom and administration bldg., Hunter College, Bronx unit, south side of Goulden Ave., 695 ft. south of Bedford Park Blvd., Bronx Boro., est. $3,000,000. Plans deposit $50. CD 6/23/55.

▲† Md., **Baltimore**—OLD AGE AND SURVIVORS INSURANCE BLDG.—BA About 10/15—General Services Admin., Public Building Service, Wash., D. C., old age and survivors insurance bldg., Proj. No. 18-076. CD 11/14/55.

BUILDINGS—SLC

▲ D. C. **Wash.**—DORMITORY—Georgetown University, 37 and O Sts. N.W., soon lets contract, resident dormitory for hospital $1,000,000. Faulkner, Kingsbury & Stenhouse, Ring Bldg., archts. CD 3/26.

▲ N. J., **Trenton**—HOSPITAL—At office, Skidmore, Owings & Merrill, archts., 425 Park Ave., New York, N. Y., soon lets contract 5 story, brick, glass and steel wing to existing hospital for Mercer Hospital, 446 Bellevue Ave. $1,000,000. CD 8/8.

▲ N. Y., **Big Flats** — APPARATUS — Corning Glass Works, Corning, and 718 Fifth Ave., New York, soon lets contract 176,000 sq. ft. brick, steel apparatus bldg. and parking area, $3,000,000. Carroll Grisdale & Van Allen, 204 S. 19 St., Phila., Pa., archts. Day & Zimmerman, 1700 Sansom St., Phila., Pa., engrs

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—John W. Johnson, Supt., Dept. P. Wks., Gov. Alfred E. Smith State Office Bldg., Albany, Bids opened 8/29,

N. Y.—**Callanan Road Improvement Co.**, South Bethlehem, N. Y., LB **$1,118,751**, est. $1,125,000 (4 bidders), reconstr. Rte. 7 from Latham Traffic Circle eastward 2.39 mi. to Grotto Court just inside Watervliet city line, Albany Co.

N. Y.—**Warren Brothers Roads Co.**, 309 Basin St., Syracuse, N. Y. LB **$114,870**. est. $142,000 (8 bidders), resurf. b. conc. 6.05 mi. section Rte. 38A, starting at Cayuga-Onondaga Co. line near Owasco and extending northwestward to point about 2 mi. south of Auburn city line, Cayuga Co.

N. Y.—**S. J. Groves & Son Co.**, Court St. Rd., Syracuse, N. Y., LB **$2,242,064**. est. $2,506,000 (6 bidders) reconstr. 6.27 mi. section Rte. 60 and 1.83 mi. of access roads between Laona and point just south of Cassadaga, excepting short stretch thru Cassadaga incl. 68 ft concrete arch bridge over Canadaway Creek,- Chautauqua Co.

N. Y.—**Globe Construction Co.**, 4 River St., Amsterdam, N. Y., LB **$288,723**. est. $293,000 (11 bidders), reconstr. 2.26 mi. section county road with 20 ft. wide bit. surf. treat grav., 6 ft. wide shoulders, culvert at Kennyette Creek, from Mills Corners (Rte. 29, 5 mi. east of Broadalbin) northward to Union Mills, Fulton Co.

N. Y.—**Ken Rifenburg**, Troy, N. Y., LB **$117,977**. est. $129,000 (4 bidders), b. conc. pavt. flanked by 10 ft. wide shoulders, incl. 37 ft. bridge 0.28 mi. section Rte. 10 near Ephrata, Fulton Co.

N. Y.—**DeLillo Construction Co. Inc.**, Hicksville, N. Y., LB **$2,506,478**. est. $2,273,000 (5 bidders), reconstr 2.47 mi. section 6-lane divided Rte. 107 and 1.29 mi.. access roads from Herzog Place near L.I.R.R. crossing in Hicksville northwestward to Jericho Turnpike, incl. widening bridge at Northern State Parkway, Nassau Co.

N. Y.—Postponed to 9/19/57, Est. **$255,000**, widening shoulders, drainage structures and facilities 10.39 mi. Rte. 11 from just south of Cicero northward 4.71 mi. to Brewerton and from Hastings northward 5.68 mi. to Maple View (Union Square), Onondaga and Oswego Counties.

N. Y.—**Warren Brothers Roads Co.**, 309 Basin St., Syracuse, N. Y., LB **$394,002**. est. $596,000 (9 bidders), resurf. b. conc. 12.53 mi. section Rte. 89 starting in East Varick at County Road 128 intersection and extending northward thru Canoga to Seneca Canal about 1 mi. south of Rte. 5 intersection (Halsey Corners), Seneca Co.

N. Y.—No bids received 8/29/57. Est. **$247,000**, reconstr. 1.86 mi. section County road 21 starting near Barryville and extending northward toward Yulan, Sullivan Co. CD 7/29.

▲ **NEW YORK**—John W. Johnson, Supt., Dpt. P. Wks., Gov. Alfred E. Smith State Office Bldg., Albany, Bids opened 8/29,

N. Y.—**D. A. Collins Contracting**, 55 North Main St., Mechanville, N. Y., LB **$4,959,515**. est. $5,598,000 (6 bidders), constr. bridge and approaches 0.7 mi. to carry new interstate "Northway" route over Mohawk River near Dunbach Ferry about 2½ mi. west of existing Rte. 9 crossing at Crescent (twin structures-6 spans, each to carry three-lanes of traffic), Albany and Saratoga Counties.

N. Y.—**Arthur A. Johnson Corp.**, 347 Madison Ave., New York, N. Y., & **Peter Kiewit Sons Co.**, 122 East 42 St., New York, N. Y., LB **$1,397,833**. est. $1,429,000 (3 bidders), two new bridges and approaches to carry Rte. 9 over Hudson River at Schuylerville, starting at Broad and Ferry Streets and extending eastward for 0.61 mi. crossing over

(Continued on page 106)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England
Middle Atlantic
South

Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways

Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

LEHIGH TUNNEL

New Pennsylvania Turnpike Tunnel Links Philadelphia and the Poconos

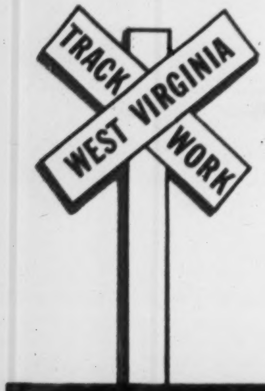
A major link in the Northeastern Extension of the Pennsylvania Turnpike between Philadelphia and the North is the new Lehigh Tunnel through the Blue Mountain west of Palmerton, Pa. The tunnel is 4,379 ft long, and provides for two lanes of traffic, separated by a concrete divider. The interior finish is tile, and illumination is furnished by some 800 fluorescent lights.

In all, more than 37,000 cu yd of concrete were placed in the tunnel, including the roadbed. Bethlehem supplied a number of steel products for the tunnel as well as for all sections of the Turnpike, including reinforcing bars, bar mats, dowel units and other highway steels.

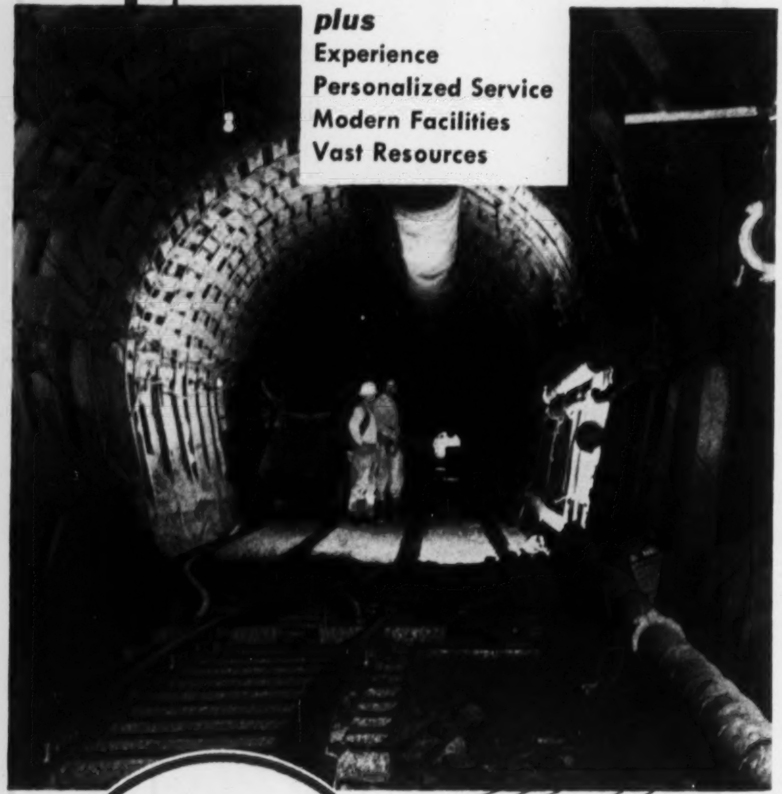
The Northeastern Extension of the Turnpike starts at Plymouth Meeting and presently extends to Wilkes-Barre. It provides access between the Philadelphia metropolitan area and the industrial, farming, and Pocono Mountain resort areas to the north.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL



"Everything in Trackwork"



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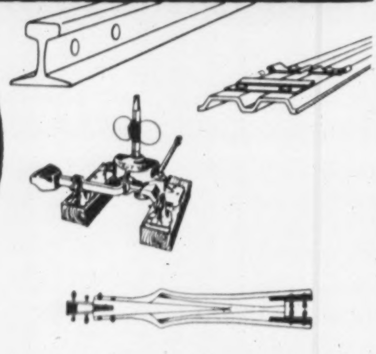


H. K. PORTER COMPANY, INC.
CONNORS STEEL DIVISION

(Continued from page 104)

river's west branch on 4-span 348 ft. long structur and over east branch 4-span 531 ft. long. (We approach between Broad and Canal Streets will b 40 ft. wide), Saratoga and Washington Counties CD 7/29.

Forest Electric Corp., 630 9 Ave., New York, N. Y LB **$418,675** (4 bidders) electrical work for replacin electric wiring in Building 1, 10, 12, 18, 20, 33, 41, 47 and 52, Binghamton State Hospital, BINGHAMTON, N. Y. State Dpt. P. Wks., The Gov. Alfred E. Smith Office Bldg., Albany, N. Y.

W. H. Greene, Grand Blvd., Westbury, N. Y. C **$779,375**, imprv. Jerusalem Ave. from Unionda Ave., Uniondale easterly to Newbridge Rd., Nort Bellmore, town of Hempstead by paving, curbs, sidewalks and drainage approx. 15,100 ft. MINEOLA, N. Y. Comr. P. Wks., Nassau Co., Old County Court House, Mineola, N. Y. Bids July 3. CD 7/17, under LB.

Edward T. Barry & Sons, 226-06 139th Ave., Laurelton, N. Y. LB **$97,929** (4 bidders) No. 6, Section (B) grading, widened areas, regrading, curbing, recurbing, flagging reflagging, building and rebuilding basins, sheet asph. (permanent pavement) in Tinton Ave. from E. 163 to E. 165 Sts.; E. 165 St. from Trinity to Tinton Aves.; recurbing, reflagging and building basins where necessary on north side of E. 163 St. from Trinity to Tinton Aves., NEW YORK, N. Y. President Bronx Boro, Bronx Co. Bldg., 851 Grand Concourse, New York 51, N. Y. Bids Aug. **27. CD 8/20.**

Walsh Constr. Co., 711 3 Ave., New York, N. Y., LB **$648,700**. maintenance yard with bulkhead wall and relieving platform located between easterly U. S. pier and bulkhead line of Harlem River and Exterior St. and between Fordham Rd. and Landing Rd., Bronx Boro, NEW YORK, N. Y. President Bronx Boro, Bronx County Bldg., 851 Grand Concourse, New York 51, N. Y. Bids July 23. CD 7/19.

▲ **Poirier & McLane Corp. and Psaty & Fuhrman**, 33 W. 42 St., New York 36, N. Y. LB **$5,844,700** (3 bidders) Contr. 878, structures and equip.; Contr. 878P, plumbing work; Contr. 878H, heating and ventilating; Contr. 878E, electrical work fo sewage treatment plant, Yonkers Sewer Proj. city of Yonkers, WHITE PLAINS, N. Y. Westchest Co., James C. Harding, comr., County Bldg., Whit Plains, N. Y. Bids Aug. 28. CD 8/16.

† **South Shore Contg. Dredging Corp.**, 100 West Ave. Patchogue, N. Y., LB **$53,499** (5 bidders) dredging 8 ft. below mean low water involving removing 77,200 cu. yd., place measurement all material except ledge rock from Sandy Hook Bay at Leonardo, Monmouth Co., ENG-30-075-58-11, NEW JERSEY. U. S. Eng., 111 E. 16 St., New York 3, N. Y. Bids Aug. 29. CD 8/12.

August Arace & Sons, 642 Third Ave., Elizabeth, N. J. CA Est. **$48,647**, exten. water mains over North Ave., ELIZABETH, N. J. City, City Hall, Elizabeth, N. J. James D. McLeavey, City Hall, Elizabeth, N. J., city engr.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,

James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa., CA **$3,818,329**. divided hy. c. conc. 32,725 ft. 24-ft. wide each side of divisor, T.R. 22, Upper Macungie and Weisenberg Twps., Lehigh Co. Bids Aug. 16. CD 8/22, under LB.

Glasgow, Inc., Glenside, Pa., LB **$354,600**. Grading Blocks 3-4-10, Pattison Ave.-East Redevelopment Proj. "A", PHILA., PA. Phila. Redevelopment Auth., 21 and Parkway Sts., Phila., Pa.

Tony De Paul & Sons, 7509 Forest Ave., Phila., Pa. LB **$121,363**, Bids 3135 and 3138, paving, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. David M. Smallwood, c/o owner, streets comr. CD 8/9.

† **American Constr. Co.**, 261 Constitution Ave. N. W., Wash., D. C. LB **$672,400**, modernization of aeroballistics facilities, Bldg. 406, Naval Ordnance Laboratory, SPEC. 50445, WHITE OAK, MD. Dist. Pub. Wks. Office, Dpt. Navy, Naval Gun Factory, Wash., D. C. Bids July 19. CD 6/17.

† **Corson & Gruman**, 33 and K Sts. N.W., Wash., D. C., LB **$124,834** (7 bidders) reconstr. Beach Dr., Pinehurst Stream to Wise Rd., Rock Creek Park, WASH., D. C. National Park Service, Dpt. Interior, C St. between 18 and 19 Sts. N.W., Wash., D. C. Bids Aug. 27. CD 8/21.

BUILDINGS—LB & CA

George A. Fuller Co., 597 Madison Ave., New York, N. Y., CA foundations for an apparatus PLANT, BIG FLATS, N. Y. Corning Glass Works, Corning, N. Y., and 718 Fifth Ave., New York, N. Y.

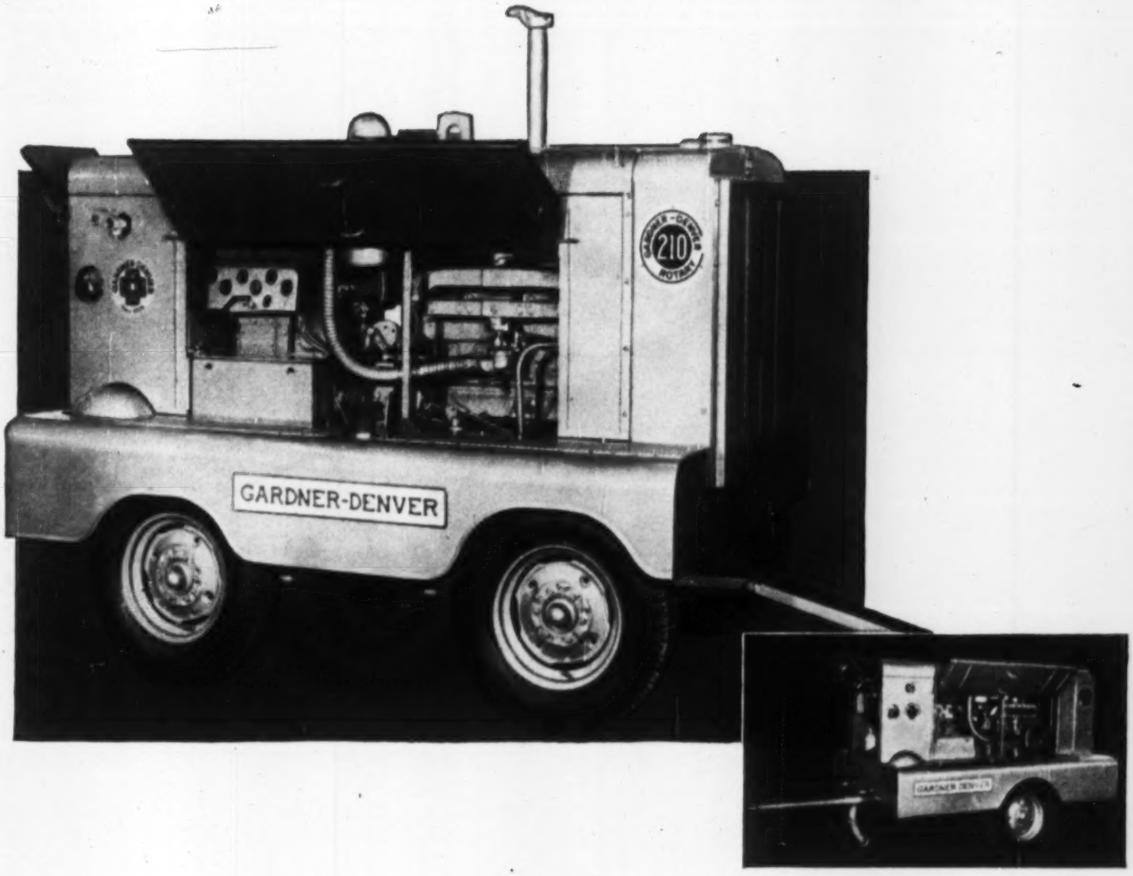
▲ **Brigham Homes**, c/o Morris Rothstein & Sons, 186 Joralemon St., Brooklyn 2, N. Y. Owner Builds. **$3,800,000**, 152 HOUSES, Brigham, Bragg and Coyle Sts. between Aves. X and Y, BROOKLYN, N. Y.

Brikay Constr. Corp., 16 Court St., Brooklyn, N. Y., Owner Builds. **$540,000**. 83x147 ft. multiple DWELLING and GARAGE, 83-19 141 St. northeast corner Main St., FLUSHING, N. Y. CD 5/8.

▲ **Brikay Constr Corp.**, 16 Court St., Brooklyn, N. Y. Owner Builds, **$1,017,000**. 98x316 ft. multiple DWELLING and GARAGE, 8410 Main St. southwest corner 82 Dr., JAMAICA, N. Y. CD 5/8.

▲ **Caristo Constr. Corp.**, 26 Court St., Brooklyn 2, N. Y. LB **$3,228,000**. (9 bidders) HHFA Proj. NY-30-CH-35, STUDENT CENTER BLDG., Washington Sq., NEW YORK, N. Y. New York University, Washington Sq., New York, N. Y. Bids Aug. 27. CD 10/5/55.

(Continued on page 109)



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NEW MODEL RP210 ROTARY PORTABLE

An *all-new* 210 rotary portable in your choice of:

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With these outstanding Gardner-Denver rotary features:

- Clutch for easy cold-weather starting
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WRITE FOR BULLETIN

MODEL RP210 SPECIFICATIONS

Mounting	With Diesel Engine		With Gasoline Engine	
	Two-wheel	Four-wheel	Two-wheel	Four-wheel
Delivery, cfm	210	210	210	210
Operating pressure, psi	100	100	100	100
Length	12′ with drawbar	102″	12′ with drawbar	102″
Width	67¼″	65¼″	67¼″	65¼″
Height	6′3″	6′2″	6′3″	6′2″
Track width	57½″	54″	57½″	54″
Net weight, dry	4800#	5000#	4700#	4900#

ENGINEERING FORESIGHT—PROVED ON THE JOB
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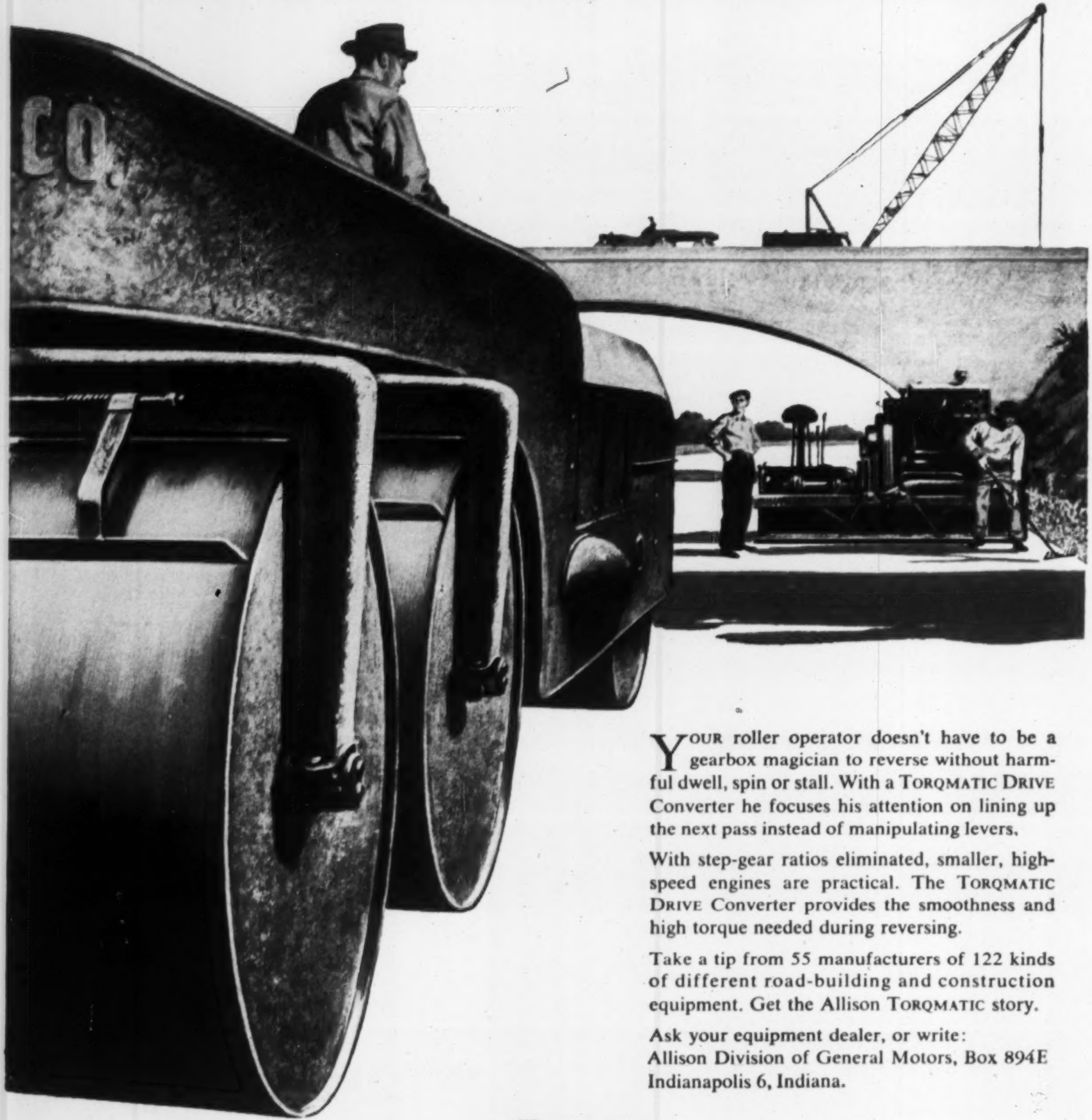

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TORQMATIC DRIVES

(Continued from page 106)

▲ **Diesel Constr. Co.**, 625 Madison Ave., New York 22, N. Y., CA Est. **$1,000,000** reconstr. 16 story OFFICE BLDG., 55 John St., NEW YORK, N. Y. Clark & Wolfson, c/o contractor.

Holiday Park, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$350,000**, second section, 14 HOUSES, Rosedale Rd. and Fairview Ave., NORTH WOODMERE, N. Y.

Archdiocesan Bldg. Comn., 451 Madison Ave., New York 22, N. Y., rejected bids June 18, St. Patrick's CONVENT, ROUSES POINT, N. Y. Est. **$344,000**. CD 6/7.

† **Walter Kidde Constructors, Inc.**, 140 Cedar St., New York, N. Y., CA Est. **$8,000,000**. new Andrus PAVILION, St. John's Riverside Hospital, YONKERS, N. Y. St. John's Riverside Hospital, Ashburton Ave., Yonkers, N. Y. Rogers & Butler, 219 E. 44 St., New York, N. Y., archts.

▲ **Gregory Manor**, c/o Krugman & DePetro, 1330 Main Ave., Clifton, N. J., Owner Builds. **$2,145,000**, 143 HOUSES, Patricia Place and Passaic Ave., off Route 3, CLIFTON, N. J.

▲ **Castles In The Woods**, c/o Mauro Realty Co., 371 Grand Ave., Englewood, N. J. Owner Builds. **$1,120,000**, 32 HOUSES, Floyd St. and Skyline Dr. off John St. and Route 9W, ENGLEWOOD CLIFFS, N. J.

Joseph St. Mikloosy, c/o Alexander Summer Co., Queen Anne Rd. and Cedar Lane, Teaneck, N. J. Owner Builds, **$360,000**, 18 HOUSES Dorothy & Paterson Sts., FAIR LAWN, N. J.

▲ **Glenburn Gardens**, c/o Alexander Summer Co., Queen Anne Rd. and Cedar Lane, Teaneck, N. J. Owner Builds, **$2,880,000**, 90 HOUSES, Radburn Rd., off Plaza Rd. N., FAIR LAWN, N. J.

Rolling Mead, c/o C. J. Kordys, 116 Passaic St., Passaic, N. J., Owner Builds, **$792,000**, 66 HOUSES, Douglas and Runyon Aves., FREEHOLD, N.J.

▲ **The New School Homes**, c/o Harsen & Johns, archts., Summit St. and Piermont Rd., Tenafly, N. J., Owner Builds, **$1,035,000**, 45 HOUSES, Paul Court, off Hillside Ave., HILLSDALE, N. J.

Michael Riesz Co., Fords, N. J., CA Est. **$450,000**, steel, brick CHURCH bldg., doric columns, colonial architecture and wooden spire, NORTH PLAINFIELD, N. J. First Methodist Congregation, East Front St., North Plainfield, N. J. CD 6/10.

Apple Hill Homes, c/o Joseph Riggio, 126-44 Queens Blvd., Kew Gardens, N. Y. Owner Builds, **$713,000**, 31 HOUSES, River Vale Rd., north of Orangeburg Rd., RIVER VALE, N. J.

▲ **Nathan Ringler**, 19 Shorecliff Pl., Great Neck, N. Y. Own Forces. **$1,000,000**, 70 HOMES, Copperfield Rd., Hamilton Twp., TRENTON, N. J. Edwin Gerber, 11 Commerce St., Newark, N. J., archt.

▲ **Woodland Park Homes**, c/o Rudolph L. Novak, 713 Main Ave., Clifton, N. J. Owner Builds, **$1,000,000**, 78 HOUSES, Union Ave. off Route 36 and Garden State Parkway, WOODLAND PARK, N. J.

Fairchance Lumber Co., Fairchance, Pa., LB **$761,500** (9 bidders) general constr. SECONDARY SCHOOL addns., alterations, Perry Lower Tyrone Joint School System, PERRYOPOLIS, PA. Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Aug. 27. CD 8/1.

▲ **Wildberger Best Constr. Co.**, 2025 E. North Ave., Baltimore 13, Md., LB **$3,597,000** (7 bidders). brick, concrete, steel, block, slag, Patterson HIGH SCHOOL, on City Hospital Grounds, BALTIMORE, MD City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. Bids Aug. 28. CD 8/15.

▲ **Philip Vizzini & Son, Inc.**, 818 N. Franklintown Rd., Baltimore 16, Md., CA **$1,039,246**, masonry, concrete steel block, limestone RELIGIOUS CENTER, BALTIMORE, MD. Har Sinai Congregation, 6300 Park Heights Ave., Baltimore 3, Md. Bids July 18. CD 8/7, under LB.

J. A. Scheibel, Inc., 5581 Branch Ave., Camp Springs, Md., LB **$389,900** (8 bidders), HEALTH AND WELFARE BLDG., at Prince George's General Hospital, CHEVERLY, MD. Prince George's County Health Dpt., Marlboro, Md. Bids Aug. 23. CD 8/2.

▲ **R. & S. Co.**, 5560 Silver Hill Rd., District Heights, Md. Owner Builds. **$5,500,000**, 400 unit APARTMENT, RESTAURANT and GAS STATION, Landover Rd. and Washington-Annapolis Expressway, CHEVERLY, MD. Walton & Maddon, 3510 Rhode Island Ave., Mt. Rainier, Md., archt.

S. Wagman, 1837 Redwood Terrace N.W., Wash., D. C., Owner Builds, **$700,000**, 50 HOMES in Aspen Hill area, WHEATON, MD. Jack Cohen, 7961 Eastern Ave., Silver Spring, Md., archt.

United Warehouse "D", Inc., 931 Investment Bldg., Wash., D. C. Owner Builds. **$500,000**, 1 story brick, cinder block, WAREHOUSE, 3130-3180 V St. N.E., WASH., D. C. Howard L. Keller, 8035 13th St., Silver Spring, Md., engr.

SOUTH

HEAVY CONSTRUCTION—BA

† **Fla., Jacksonville**—FACILITIES—BA 9/18—Office in Charge of Constr., Bldg. 902, Naval Air Station, dispensary facilities relocation and imprvs. Bldg. No. 8, Naval Air Station, NBy 13822, Spec. 13822/57. CD 8/27/56.

Fla., Miami—BA 9/18—City Comn., 1145 N.W. 11 St., F. L. Correll, clk., Hy. Imprv. Dist. H-531. Plans deposit $10. CD 6/24.

Fla., Miami—BA 9/18—City Comn., F. L. Correll, clk., 1145 N.W. 11 St., Sanitary Sewer Dist., SR-341S

Which QUAKER HOSE do you need today... to cut costs tomorrow?

Rugged, non-twisting AIR HOSE?

Though lightweight for easy handling, this hose won't snake or twist under pressure. It takes dragging . . . resists oil damage . . . withstands cracking at temperatures as low as 20°F. Tough Neoprene cover withstands all weather conditions.

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This all-purpose water hose is long on wear and value. Easy to handle, it has a black, high-grade rubber cover that resists sun, weather, cracking and peeling. Black, non-porous tube.

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Here's a rugged, long-lasting hose for conducting water under pressure or suction. It resists kinking and crushing and has good sun, weather and abrasive-resistant qualities. Tube resists action of water containing light concentrations of alkalies, acids, grit and sand.

THESE are but a few of the many types of air, water and suction hose your Quaker-Quaker Pioneer distributor has on hand and ready to go. Call him—whatever your needs. For free brochures, write: *H. K. Porter Company, Inc., Quaker Rubber Division, Phila. 24, Pa., or Quaker Pioneer Rubber Division, Pittsburg, Calif.*

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SEND FOR YOUR COPY TODAY—You'll find this bulletin full of practical suggestions for minimizing the destructive effects of abrasion on wire rope you use. That means longer useful life, less down time, lower costs. These suggestions are in simple, non-technical language, easy to follow, yet technically sound...based on the same full century of rope making experience that insures consistent top quality in every foot of *Leschen Red-Strand Wire Rope.* So write for Bulletin 101 today. At the same time, ask for free engineering counsel on any other wire rope problem you may have experienced. Address: Leschen Wire Rope Division, H. K. Porter Company, Inc., 2727 Hamilton Avenue, St. Louis 12, Missouri.

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concrete foundation and walls, brick facing, steel and SR 341C, Plans $10 refundable. City Eng. Dpt., 3332 Pan American Dr., engr. CD 9/38/19.

† **Fla., Jacksonville**—FIRE PROTECTION, etc.—BA 9/19—Officer in Charge of Constr., Bldg. 902, Naval Air Station, fire protection and provision of ship-to-shore connection exten., Fuel Pier No. 142, Naval Air Station, NBy 13824, Spec. 13824/57. CD 8/27/56.

† **Fla., Jacksonville**—STABILIZATION—BA 9/24—Officer in Charge of Constr., Bldg. 902, Naval Air Station, stabilization of blast areas adjacent to taxiway and taxiway connections, Naval Air Station, NBy-13821, Spec. 13821/57. CD 8/27/56.

† **Fla., Tampa**—UTILITIES—BA 10/1—Base Procurement Office, MacDill Air Force Base, Tampa, repairing corrosion preventive utilities, MacDill Air Force Base, No. 08-602-58-3. Extended date. CD 8/7.

† **Fla., Tampa**—CONCRETE PAVING—BA 10/1—Base Procurement Office, MacDill Air Force Base, Tampa, concrete paving on Holding Pad, MacDill Air Force Base, No. 08-602-58-5. CD 8/24/56.

† **Fla., Tampa**—STORAGE VAULT—BA 10/2—Base Procurement Office, MacDill Air Force Base, modify film storage vault, MacDill Air Force Base, No. 08-602-58-7. Extended date.

BUILDINGS—BA

La., Baton Rouge—DORMITORIES—BA 9/19—Louisiana State University, Baton Rouge, married students dormitories on campus. $765,000. William J. Hughes, Jr., 3160 Florida St., archt. CD 7/2.

Fla., Tampa—OFFICE—BA 9/20—Bd. Comrs., Hillsborough Co., Court House, 1 story, 113x221 ft., structural steel, concrete office bldg, Plant City, Pullara, Bowen & Watson 2910 Grand Central Ave., archts. CD 7/15.

HEAVY CONSTRUCTION—LB & CA

† **VIRGINIA**—Bureau P. Rds., Dpt. Commerce, 1440 Columbia Pike, Arlington, Bids opened Aug. 27,

Troitino Bros., Inc., Beckley, W. Va., LB **$287,056**, (5 bidders) concrete box girder viaduct, 0.217 mi. over Otter Creek and Virginia Rte. 130, concrete T-beam bridge over Otter Creek, etc. for Proj. 1G12 13, Blue Ridge Parkway, Amherst Co. CD 7/31.

▲ **VIRGINIA**—Commonwealth of Va., Dpt. Hys., Central Hy. Office Bldg., 1221 E. Broad St., Richmond,

Va.—**E. V. Williams Co., Inc.**, 1269 E. Princess Anne Rd., Norfolk, Va. and **W. H. Scott, Inc.**, Franklin, Va., CA **$509,004**, c. conc. 1.07 mi. and overpass of Chesapeake & Ohio R.R. to connect U.S. 60 and 168 at jct. U.S. 17 near Morrison Rte. 312 SP 7394-70-71-72, FP U-122-1 (2) city of Warwick;

Va.—**Malpass Constr. Co., Inc.**, Box 4645, Norfolk, Va., CA **$1,083,022**, c. conc. 0.96 mi. divided four-lane Hy. and overpass A and D R.R.; twin bridges over Meherrin River and an underpass and connection at Brunswick Ave. FAI 401 (US 301) Greensville Co.;

Va.—**Nello L. Teer Co., Inc.**, Trust Bldg., Durham N. C., CA **$2,251,086**, c. conc. 3.7 mi. and 2 bridges beginning at NCL Hampton and ending north Int. Rte. 258, FAI, SP 8227-70-71-72, FP I-122-1 (7) Contr. 1, City of Hampton. Bids Aug. 21. CD 8/26, under LB.

WEST VIRGINIA—State Road Comn., Charleston, Zone 5, Bids opened 8/27,

Jarvis-Courtney Corp., Box 1746, Clarksburg, W. Va., LB **$298,494**, 3 cont. steel I-beam girder spans on concrete substructure over Second Elk Creek, Br. No. 2006, U.S. 50. Proj. U. 282(9), Harrison Co. CD 8/15.

▲ **WEST VIRGINIA**—State Road Comn., Charleston, Zone 5, Bids opened 8/27,

Haynes Constr. Co., Inc., Bluefield, W. Va. and **W. E. Ringwald & Sons**, 42 E. 2 St., Chillicothe, O., LB **$1,166,805**, c. conc. paving, b. conc. bottom and wearing courses 1.85 mi. Charleston Airport Road (W. Va. 14), Proj. S 2(4), Kanawha Co. CD 8/15.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 8/27,

N. C.—**Wilson Constr. Co., Inc.**, Box 603, Salisbury, N. C., LB **$117,768**, est. $100,000-$125,000, replacing Bridge No. 11 over Town Creek; replacing Bridge No. 35 over Otter Creek; replacing Bridge No. 41, over Cokey Swamp, Proj. 8.21356, S-904(1), S-905(1) and S-906(1), Edgecombe Co.;

N. C.—**Blythe Bros. Co.**, Box 989, Charlotte, N. C., LB **$1,482,670**. structures U. S. 29, Proj. 8-16525, I-647 (6) Gaston and Mecklenburg Counties;

N. C.—**Wm. B. Dillard**, Sylva, N. C., LB **$74,918**, est. $50,000-$75,000. structures NC 63 Proj. 8.19741, S-397 (6), Madison and Buncombe Counties;

N. C.—**Butler Bros. Constr. Co.**, Box 1260, Greensboro, N. C., LB **$96,574**, est. $75,000-$100,000. bridge over Dan River on Co. Rd., BS 6.512052, Rockingham Co.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 8/27,

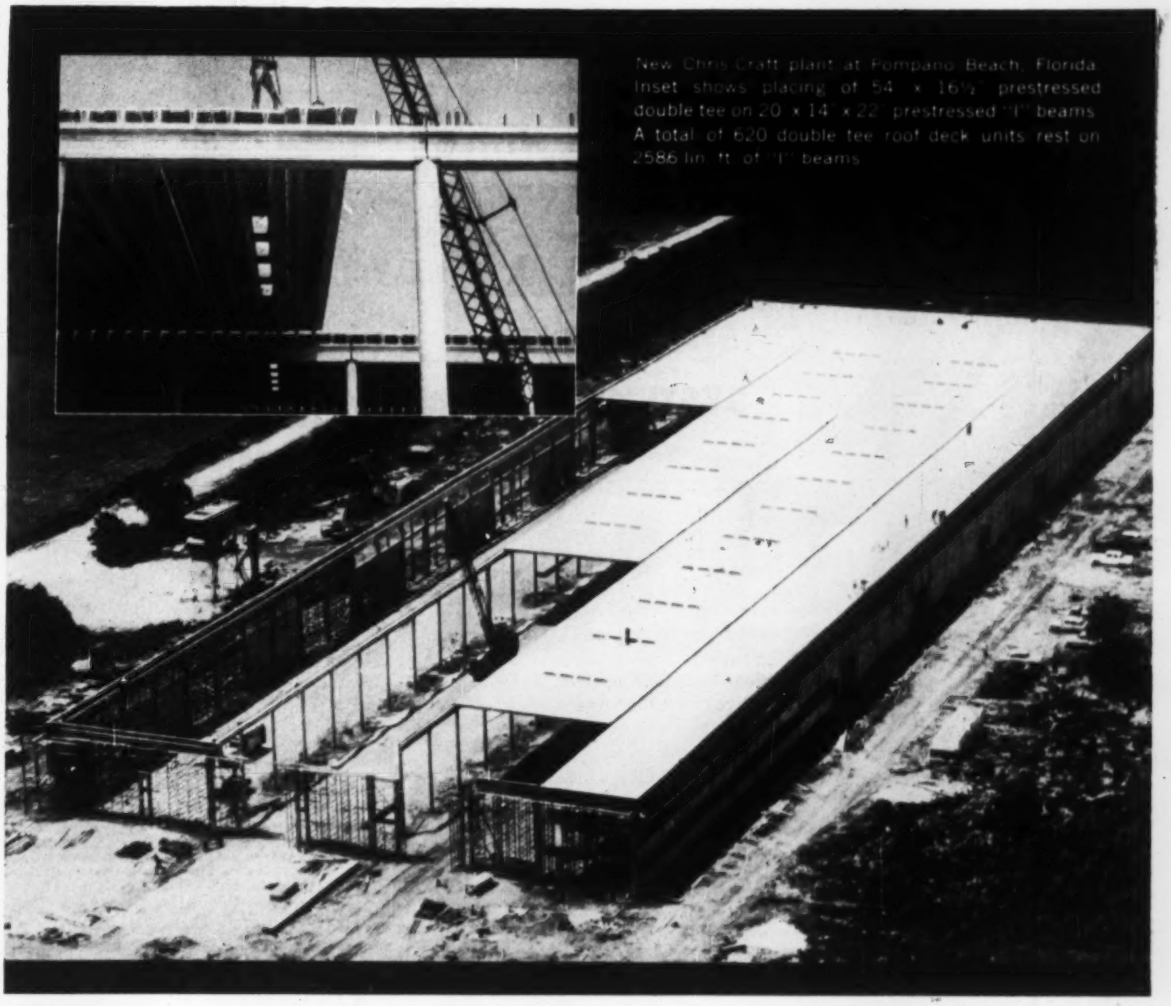
N. C.—**T. A. Loving & Co.**, Box 6355, Raleigh, N. C., LB **$80,246**, est. $75,000-$100,000. b. conc. binder and surf. 5.68 mi. US 15 and 501 and NC 54 and 86, 6.501163, Coed 9.80702, and 9.80703, Orange Co.; LB **$169,149**, est. $75,000-$100,000. SABC (shoulder) and b. conc. binder and surf. 8.63 mi. N.C. 49 BS 6.601101, Davidson Co.;

N. C.—**F. D. Cline Paving Co.**, Box 349, Raleigh, N. C. LB **$322,392**, est. $300,000-$400,000, subgrade reinf., CABC and b. conc. binder and surf. 5.54 mi. US 17 and US 13, 8.11095, F-165 (6) and F-193 (6), Bertie Co.;

N. C.—**Brown Paving Co.**, Box 484, Lexington, N. C., LB **$207,859**, est. $225,000-$250,000. grading, subgrade reinf., S. A. Base and surf. 6.17 mi. NC 87, 8.13154, S-898(1) Brunswick Co.;

N. C.—**Blankenship Bros.**, Box 3868, Charlotte, N. C., LB **$423,700**, est. $400,000-$500,000. grading 4.7 mi. U.S. 29, 8.16525, I-647(6) Gaston and Mecklenburg Counties;

(Continued on page 112)



New Chris-Craft plant at Pompano Beach, Florida. Inset shows placing of 54' x 16½' prestressed double tee on 20' x 14" x 22" prestressed "I" beams. A total of 620 double tee roof deck units rest on 2586 lin. ft. of "I" beams.

120,688 sq. ft. of prestressed roof deck placed in 9 working days

It took only 9 working days for a 5-man crew using a 20-ton crane to place the double tees for this 623′ x 194′ roof deck. Fast, economical results like this are one of the big reasons for the rapidly growing use of prestressed concrete.

For matching speed and economy in precasting the units for this job, Lewis Manufacturing Company used LEHIGH EARLY STRENGTH CEMENT. "Our entire operation," writes Mr. Lewis, "has always been geared to the use of Lehigh Early Strength Cement and live steam curing. This fast, economical production method enables us to give our customers better service, at lower cost."

This job is a typical example of the advantages of both prestressed concrete and Lehigh Early Strength Cement in modern construction.

Contractor: Witters Construction Co.
Hialeah, Florida

Prestressed Units Manufactured and Erected By: Lewis Manufacturing
Company, Miami, Florida

LEHIGH
HIGH EARLY STRENGTH PORTLAND CEMENT

- LEHIGH EARLY STRENGTH CEMENT
- LEHIGH MORTAR CEMENT
- LEHIGH PORTLAND CEMENT
- LEHIGH AIR-ENTRAINING CEMENT

LEHIGH PORTLAND CEMENT COMPANY

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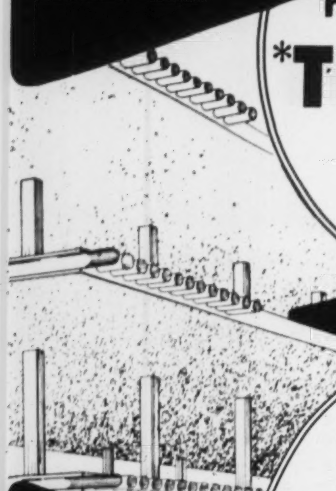
*TUBE SLAB CONSTRUCTION SYSTEM



- Reduces construction costs
- Reduces floor thickness
- Lightweight
- Provides recessed ducts for mechanical installations
- Vibration-resistant — fireproof and soundproof
- Unlimited flexibility of design

Tube Slab construction is in a patent pending status. The Tube Slab Company is exclusive licensee. Users without license are potentially liable for life of structure.

Proven in actual use in over $50,000,000 of construction—typical installations are—I.B.M. Building, Hartford, Conn., Manchester Conn. High School, Highway bridges in many states.

* Trademark

Authorized tube manufacturers can furnish license with invoice. For your protection insist on license signed by A. J. Macchi, the inventor (re E.N.R. May 29, 1957). Write for details.

THE TUBE SLAB COMPANY

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CUTTING WIRE ROPE IS EASY

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FAST Especially designed cutting blade and dies assures fast cutting action. The hammer principle eliminates any special skill requirements.

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PORTABLE Models for tool kit or stationary operation. With cutting capacities up to: 1 inch, 1-1/16 inch, 1-1/2 inch.

SEE YOUR DEALER OR WRITE DEPT. "B"

MORSE-STARRETT PRODUCTS CO.

1204 - 49th AVENUE, OAKLAND 1, CALIFORNIA

(Continued from page 110)

N. C.—**W. E. Graham & Sons**, Cleveland, N. C., **$98,537** est. $100,000-$125,000, CABC, bit. surf. 2.63 mi. 8.29454, S-912(1), McDowell Co.;

N. C.—**A. R. Thompson Constr., Inc.**, Rutherfordton, N. C., LB **$98,922**, est. $75,000-$100,000, CABC bit. surf. 2.37 mi. 8.29555, S-550(2), Rutherford Co.;

N. C.—**Wm. B Dillard Constr. Co.**, Sylva, N. C., LB **$236,968**, CABC, bit. surf. 4.1 mi. NC 63, 8.119741, S-397(6), Madison and Buncombe Counties;

N. C.—**Thompson-Arthur Paving Co.**, Box 1197, Greensboro, N. C., LB **$129,877**, b. conc. binder and surf. 7.15 mi. US 29 and 158, BX 6.511118, Code 9.80718, Rockingham Co. CD 8/19.

NORTH CAROLINA—State Hy. Comn., Raleigh,

Macon Constr. Co., Franklin, N. C., CA **$893,025** est. $400,000-$500,000. CABC, bit. surf. tr. 4.5 mi. Rte. U. S. 70 and 25, Proj. No. 8. 19723, Madison Co. Bids July 30, awarded Aug. 26. CD 8/6, under LB.

▲ **Bumby & Stimpson, Inc.**, 525 Hames St., Orlando, Fla., LB **$1,431,027**, Contract A, sanitary sewers, Improvement 1000, Area "D", FORT LAUDERDALE, FLA. City Comn., Wm. J. Vedder, mgr., City Hall, Fort Lauderdale, Fla. Bids July 26. CD 6/28.

† **Ford Constr. Co.**, Dyersburg, Tenn., LB **$267,120**, (4 bidders), Ramah-Morgan City levee restoration, INV No. 58-6, Iberville Parish, LOUISIANA, U. S. Eng., foot of Prytania St., New Orleans, La. Bids Aug. 20, CD 7/24.

KENTUCKY—State Hy. Dpt., Lexington,

rejected bids July 26, c. conc. paving with crushed slag for insulation and entrances, 1.371 mi. The Ashland-Portsmouth (Russell By-Pass), F 201(11) SP 45-711; SP 45-31, Greenup Co., LB **$607,164**. CD 8/2 under LB.

▲ **KENTUCKY**—Commonwealth of Ky., Dpt. Hys., Frankfort, Bids opened 8/23,

Ky.—**Kentucky Road Oiling Co.**, Frankfort, Ky., LB **$150,095**, (2 bidders), bit. surf. Class C-1, 17.349 mi. various roads, RS Group 37 (1957) Rowan Co.; LB **$94,071** (9 bidders), traffic bound limestone, 1.482 mi. Floyd County Line Rd., S 265 (2), RS 60-578 The Ky. 275, Knott Co.; LB **$172,843**, (9 bidders), traffic bound limestone, 4.554 mi. The Farmers-Colfax-Grange City Road, S 702 (1), SP 103-182, Rowan Co.

Ky.—**T. M. Hook**, Hardinsburg, Ky., LB **$136,271**, (4 bidders), traffic bound limestone, 4.195 mi. The Muldraugh-Otter Creek Brandenburg Station Rd., S 216 (3), SP 82-243, Meade Co.; LB **$85,498**, (2 bidders) traffic bound limestone, 3.336 mi., The Union Star-Mystic Rd., RS 14-833, Breckinridge Co.

Ky.—**The Allen Co., Inc.**, Winchester, Ky., LB **$1,191,729**, (3 bidders), b. conc. surf. Class I (slag agg.), 11.29 mi. The Louisa-Catlettsburg Rd., F 537 (4), SP 64-111 & SP 10-85, Lawrence and Boyd Counties,

Ky.—**L. G. Arnold, Inc.**, 201½ N. Dewey St., Eau Claire, Wis., LB **$116,729**, (3 bidders), traffic bound limestone 3.308 mi., The US 231-Woodbury-Richardsville-Ky. 67 Road, S 667 (1) RS 16-136, Butler Co.

Ky.—**John L. Burns**, 851 Glendle Lane, Nashville, Tenn., and **Waters Constr. Corp.**, Elizabethtown, Ky., LB **$944,772** (8 bidders) b. conc. surf. Class I (dense graded aggreg. base) (using Limestone aggr.), 8.175 mi. The Stanford-Somerset Rd., F 502 (6), SP 69-550, SP 100-205, Lincoln and Pulaski Counties,

Ky.—**Carey Constr. Co. & H. C. Adams**, Citizens Bank Bldg., Lexington, Ky., LB **$80,563** (3 bidders), b. conc. base, Class 1 modified, limestone aggr., 4.049 mi. The Maysville-Dover Rd. and the Moranburg-Sharon Rd., SP 81-555; SP 81-515, Mason Co.;

Ky.—**Chism & Miller Co.**, Weille Blvd., Paducah, Ky., LB **$290,253**, (3 bidders), traffic bound limestone. with alternate B piling, 1.645 mi. The Carrsville-Tolu Rd., S 125 (4), SP 70-30; SP 28-466, Livingston and Crittenden Counties;

Ky.—**R. R. Dawson Bridge Co.**, Bloomfield, Ky., LB **$95,888**, (6 bidders), traffic bound limestone, 2.826 mi. The Ida May-Heidelbert, Ky. 52 Rd., RS 65-289, Lee Co.;

Ky.—**C. C. Hall**, Paintsville, Ky., LB **$73,561**, (9 bidders), traffic bound limestone 2.31 mi., The Stinnett-Redvird Rd., RS 66-252, Leslie Co.;

Ky.—**Highland Constr. Co. Inc.**, 4416 Poplar Levell Rd., Louisville, Ky., LB **$882,881** (6 bidders), grade, drain, 1.893 mi., The Inner Belt (US 60-US 42) Rd., 105-1 (1), SP 56-628, Jefferson Co.;

Ky.—**Licking River Limestone Co.**, West Liberty, Ky., LB **$102,291**, (2 bidders), b. conc. Class 1 and alternate piping, 0.945 mi. The Ky. 172-Dingus (Ky. 437) Rd., S 438 (5), SP 88-478 Morgan Co.;

Ky.—**Oman Constr. Co., Inc.**, Acklin Park, Nashville, Tenn., LB **$833,739**, (7 bidders), b. conc. surf. Class 1 for Sonora Rd. and traffic bound limestone for Sonora cut-off and Nolin Rd. with alternate A piling, 3.724 mi. The Louisville Tennessee State Line Rd., 1 01-4 (4), SP 47-129, Hardin Co.;

Ky.—**T. & S. Contracting Co.**, Calvert City, Ky., LB **$96,201** (2 bidders) b. conc. base, Class 1 modified, 2.261 mi. The Paducah, Calvert City, West Gilbertsville Rd., SP 79-953, Marshall Co.;

Ky.—**Tye & Wells**, Eminence, Ky., LB **$90,630**, (4 bidders), traffic bound limestone 0.738 mi. The Robinson Rd., S 668 (1), RS 49-512, Harrison Co.;

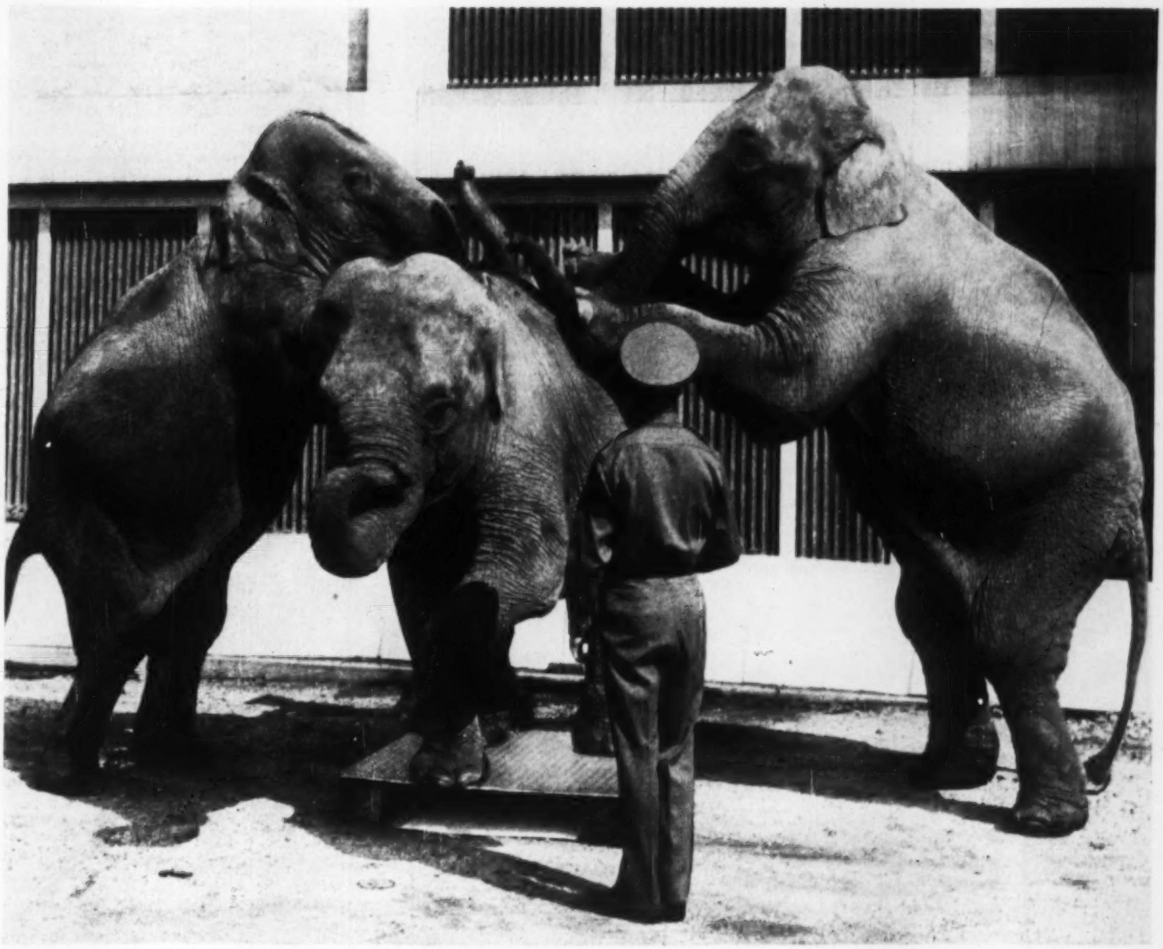
Ky.—**T. C. Young Constr. Co.**, Williamsburg, Ky., LB **$74,995**, (7 bidders), traffic bound limestone 2.502 mi. The Swcpe Natlee Rd., RS 94-783, Owen Co. CD 8/7.

BUILDINGS—LB & CA

Reid, Inc., 711 N. Fayett St., Alexandria, Va., CA **$669,966**, Lincolnia Hills ELEMENTARY SCHOOL, for west section, ALEXANDRIA, VA: Alexandria Bd. Educ., City Hall, Alexandria, Va. Willgoos & Chase, 300 Montgomery St., Alexandria, Va., archts. Awarded July 31. CD 10/17/55.

▲ **A&P Constr. Co.**, 419 W. 22 St., Norfolk, Va., LB **$1,988,473**, (6 bidders) 1 and 2 story, wood piles,

(Continued on page 114)



2-TON BABIES PROVE 4-WAY'S STRUCTURAL STRENGTH

These frolicsome 2-ton circus babies demonstrate the ability of Inland 4-WAY Safety Plate to support tremendous weights. Because of 4-WAY's rugged strength, this 4' x 4' plate bears up under 4,000 pounds of pudgy pachyderm without a hint of strain.

The extreme structural strength of Inland 4-WAY Safety Plate is an important factor in plant safety. 4-WAY is not just another flooring surface material, but a steel plate that can be used as a structural member.

Strength, however, is only one of the advantages that 4-WAY offers. Its **slip-resistance, durability, attractive appearance, ease of application, fire resistance, ease of fabrication and cleanability** provide you with a combination of features unequalled by any other materials. Where can *you* use Inland 4-WAY Safety Plate? There are dozens of places in every plant where it can pay off in man hours saved . . . in providing safer, cleaner surfaces . . . in boosting general efficiency. For helpful suggestions and useful information, write to Dick Prendergast, Room 1262.

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How dangerous are "short circuits" in an electrified floor system? Granco tested E-R Cofar to find out. Here's the story:

In electrified floor systems, wires are carried through hollow steel cells. But what happens when wires "short out"? It can cause a chain reaction of electrical destruction that burns out wires, ruins equipment, injures people.

But it *won't* happen in E-R Cofar floor systems! E-R Cofar has excellent electrical continuity that prevents build-up of dangerous voltage. To prove it, Granco engineers set up the test (above) in which a constant current of 30 amps (through four 1000-watt bulbs) was pushed through the E-R Cofar units. A calibrated oscilloscope measured the high electrical continuity of E-R Cofar by charting the comparatively low voltage drop as current passed through the units.

Like to see results of this test? . . . see the reason why firesafe E-R Cofar is listed in the Underwriters' Laboratories Electrical Construction Materials list? Simply drop us a card. This Electrical Continuity Test is another example of continuing Granco research that speeds better products to you.

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GRANCO

SINCE GRANITE CITY STEEL 1878

(Continued from page 112)

frame, Lakewood JUNIOR HIGH SCHOOL, NORFOLK, VA. City School Bd., Bank and Charlotte Sts., Norfolk, Va. Bids Aug. 23. CD 8/20.

Prichard Lumber Co., Alcoa, Tenn., LB **$442,000**, AUDITORIUM and GYMNASIUM for Cherokee High school, CANTON, GA. Cherokee County Bd. Educ. Courthouse, Canton, Ga. Finch & Barnes, 64 15 St., N. E. Atlanta, Ga., archts. Bids Aug. 22.

H. & H. Constr. Co., Thomasville, Ga., LB **$490,800**, CITY HALL and JAIL, VALDOSTA, GA. City, 120 W. Hill Ave., Valdosta, Ga. Bids Aug. 20. CD 8/22

† **B. B. McCormick & Sons**, Box 248, Jacksonville, Fla., LB **$687,000** (4 bidders) off-site facilities and utilities for Capehart HOUSING, Patrick Air Force Base, COCOA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville, Fla. Bids Aug. 21. CD 8/5.

Westwood Lake, Inc., 2918 Coral Way, Miami, Fla., Owner Builds, **$350,000**. 50 RESIDENCES, Westwood Lake Addn., MIAMI, FLA. James E. Vensal, 2820 Coral Way, Miami, Fla., archt.

Edward J. Gerrits, 3465 N. W. 2 Ave., Miami, Fla., LB **$100,000**. 2 story, 159x167 ft., concrete block WAREHOUSE, 151 N. W. 54 St., MIAMI, FLA. Gonclas Corp., c/o contractor, Paul A. Grup, 1400 N. E. 125 St., North Miami, Fla., archt.

Maurice Fox, c/o Gerard Pitt, archt., 1217 Metropolitan Bank Bldg., Miami, Fla., Owner Builds, Approx. **$345,000**. 31 RESIDENCES, **S. W. 16 St. and 87 Pl.**, Miracle Manor, 4th Addn., MIAMI, FLA.

▲ **Whittenberg Constr. Co.**, 2214 S. Floyd St., Louisville, Ky., CA **$1,150,000**, rein.-con., brick cafeteria and gymnasium, High and Elementary SCHOOL, BARDSTOWN, KY. Bd. Educ., 5th and Beal Sts., Bardstown, Ky. Gregg, McCulloch & Bickel, 1281 Heyburn Bldg., Louisville, Ky., archts. E. R. Ronald & Assoc., 554 S. 3rd St., Louisville, Ky., engrs. Bids July 9. CD 7/18, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

Mich., Detroit—SWIMMING POOL, etc.—BA 9/17—City, Michael H. Butler, pres. Park & Recreation Comn., Contr. PR-137, swimming pool and field house addns., Harry Heilmann Playfield, Crusade and Liberal Aves. $200,000. Plans deposit $35, refundable. M. F. Wagnitz, 528 City-County Bldg., engr. CD 12/27.

▲ **O., Ashland**—BA 9/17—City, City Hall, sewage plant expansion and renovation; Contr. No. 1, sewage plant extens., alterations; Contr. II, Part A, new twin siphon; Part B, Town Run Trunk Sewer; Part C, Jamison Creek Trunk Sewer; Part D West Claremont Trunk Sewer, $1,020,000. Plans deposit $50 for I or II and $75 for combined. CD 2/5.

† **Wis., Madison**—BUILDING—BA 9/17—Procurement Office, 327th Fighter Group, Bldg. 600, Truax Field, Zone 7, repair and paint Bldg. 3412, Truax Field, I.F.B. 47-602-58-8.

† **Michigan**—BA 9/18—U. S. Eng., 1101 Washington Blvd., Detroit, Zone 26, channel imprvs. on Prairie River, Burr Oak, IFB CIVENG-20-064-58-9. Plans deposit $5.

BUILDINGS—BA

Mich., Livonia—SCHOOL—BA 9/18—Livonia Public School Dist., Claude Smarey, secy., 15125 Farmington Rd., Junior High School, West Chicago Ave. and Middlebelt Rd. Plans deposit $50, refundable. Jahr-Anderson-Machida Assoc., Inc., 15011 Michigan Ave., Dearborn, archt. CD 3/21/56.

O., Wooster—Y.M.C.A.—BA 9/24—Bd. Directors, Young Men's Christian Assn., Wooster, (selected list of bidders) Y.M.C.A. building, $450,000. Bellman, Gillett & Richards, 1600 Madison St., Toledo, archts. CD 6/20/56.

Ill., Oak Park—SCHOOL—BA 10/1—School Dist. 97, 122 Forest Ave., 2 story, brick Lincoln School and gymnasium addn., 835 Harvard Ave., $964,200; 2 story, brick, Hatch Elementary School and gymnasium addn., 1000 N. Ridgeland Ave. Perkins & Will, 309 W. Jackson Blvd., Chicago, archts. CD 11/16/55.

Mich., Muskegon—SCHOOL—BA 10/1—Bd. Educ., Public Schools, Frank Deyoe, secy., Community College Bldg., Muskegon, Junior High School. Plans deposit $50. Warren S. Holmes Co., 2200 Michigan National Tower, Lansing, and Arthur M. Hooker, 411 Michigan Theater Bldg., Muskegon, archts. CD 7/2.

▲ **Wis., Milwaukee**—SCHOOL—BA 10/24—Bd. School Directors, 1111 N. 10 St., Zone 3, J. Audubon Junior High School, 39 St. and Ohio Ave. $2,500,000. Plans deposit $125. Grassold-Johnson & Assocs., 734 N. Jefferson St., Zone 2, archts. CD 9/19/56.

HEAVY CONSTRUCTION—LB & CA

F. R. Morrow Constr. Co., Cambridge, O. CA **$85,547**, Proj. Ohio 513A, Ottoville, incl. 81.49 mi. telephone lines, Putnam Co., OHIO. Ottoville Mutual Telephone Co., Ottoville. Bids Aug. 21. CD 8/6.

OHIO—State Dpt. Hys., Columbus, Zone 15, Bids opened 8/20.

W. P. McCarren Co., Walhonding, O., LB **$88,566**, est. $105,460. (7 bidders) structures 0.141 mi. USR 36-(3.08) (4.12), Coshocton Co. CD 8/12.

▲ **OHIO**—Dpt. Hys., Columbus, Zone 15, Bids opened 8/20.

O.—**Southern Contg. Co.**, Box 1158, Chesapeake, O., LB **$90,659** est $111,300 (6 bidders) Type T-35 on B-119 and structures 0.653 mi. SR 559-(3.77) (6.84) S-1217 (1) Champaign Co.

(Continued on page 117)

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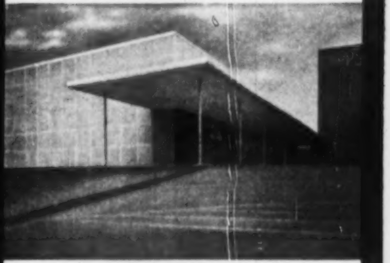
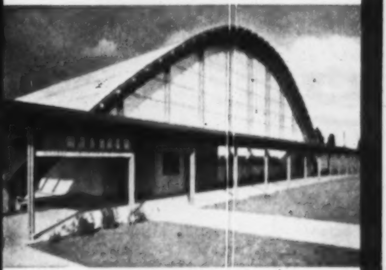
Economical!
CEMESTO PANELS*
REG U S PAT OFF

for INDUSTRIAL BUILDINGS



for COMMERCIAL BUILDINGS



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Attractive Extruded Aluminum Accessories harmonize with gray Cemesto Panel surfaces to lend beauty to curtain walls. Built-in Neoprene gaskets assure weather tightness.

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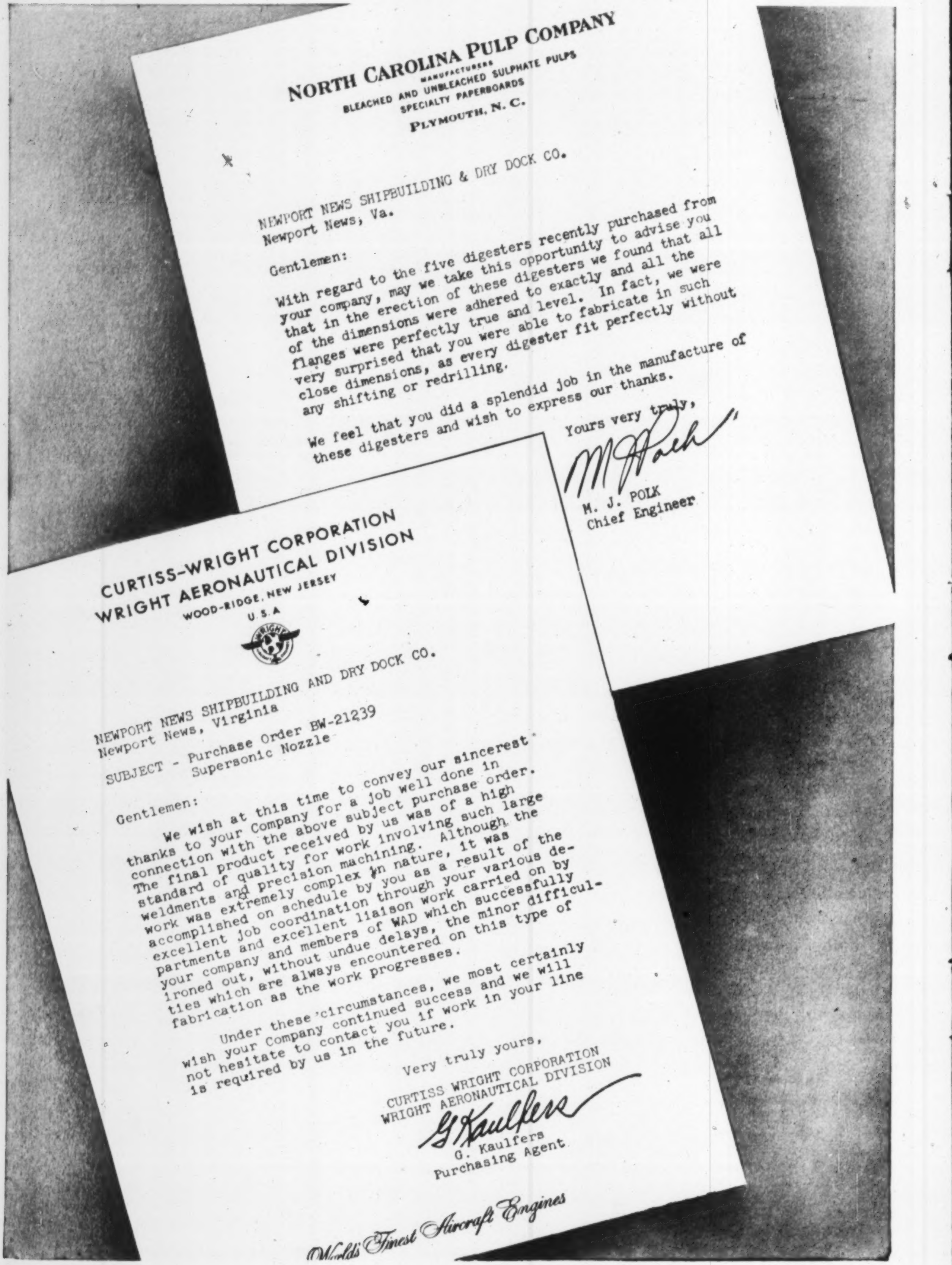

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BLEACHED AND UNBLEACHED SULPHATE PULPS
SPECIALTY PAPERBOARDS
PLYMOUTH, N. C.

NEWPORT NEWS SHIPBUILDING & DRY DOCK CO.
Newport News, Va.

Gentlemen:

With regard to the five digesters recently purchased from your company, may we take this opportunity to advise you that in the erection of these digesters we found that all of the dimensions were adhered to exactly and all the flanges were perfectly true and level. In fact, we were very surprised that you were able to fabricate in such close dimensions, as every digester fit perfectly without any shifting or redrilling.

We feel that you did a splendid job in the manufacture of these digesters and wish to express our thanks.

Yours very truly,

M J Polk

M. J. POLK
Chief Engineer

CURTISS-WRIGHT CORPORATION
WRIGHT AERONAUTICAL DIVISION
WOOD-RIDGE, NEW JERSEY
U. S. A.

NEWPORT NEWS SHIPBUILDING AND DRY DOCK CO.
Newport News, Virginia

SUBJECT - Purchase Order BW-21239
Supersonic Nozzle

Gentlemen:

We wish at this time to convey our sincerest thanks to your Company for a job well done in connection with the above subject purchase order. The final product received by us was of a high standard of quality for work involving such large weldments and precision machining. Although the work was extremely complex in nature, it was accomplished on schedule by you as a result of the excellent job coordination through your various departments and excellent liaison work carried on by your company and members of WAD which successfully ironed out, without undue delays, the minor difficulties which are always encountered on this type of fabrication as the work progresses.

Under these circumstances, we most certainly wish your Company continued success and we will not hesitate to contact you if work in your line is required by us in the future.

Very truly yours,

CURTISS WRIGHT CORPORATION
WRIGHT AERONAUTICAL DIVISION

G Kaulfers

G. Kaulfers
Purchasing Agent

World's Finest Aircraft Engines

(Continued from page 114)

O.—**Claude A. Janes, Inc.**, Box 127, Chesterhill, O., LB **$969,899** est $941,100 (8 bidders) Type T-35 and B-20 and structures 5.235 mi. SR 78-(28.70-33.82), S-572 (11) (Village of Clarington), Monroe Co.;

O.—**Nelson T. Bahan**, 549 E. Court St., Urbana, O., LB **$329,601**, est. $372,200 (5 bidders) Type T-35 on B-119 and structures 2.364 mi. SR 56-(1.29-6.17) Bridges, Champaign Co.;

O.—**Clyde L. Moore Inc.**, R. D. No. 1, Lowellville, O., LB **$80,365** est $88,300 (3 bidders) Type T-35 on B-119 and structure 0.275 mi. SR 344-1.55, Columbiana Co.;

O.—**C. F. Replogle Co.**, Box 308, Circlevile, O., LB **$1,409,560** est $1,512,600 (8 bidders) Type T-71 and structure 2.941 mi. USR 22-23.56 (Villages of West Rushville and Rushville), Fairfield Co. CD 8/12.

Don Miller Inc., Green Springs, O. CA Est. **$176,700**. 8 and 10 in. gas pipe line along Foster Park Rd. from Oberlin Ave. to Kolbe Rd., north along Kolbe Rd. to south of Jaeger Rd., west across country to Oak Point Rd., northwest along Oak Point Rd. to Lake Rd. and west on Lake Rd. to Ford site, Lorain, Lorain Co., OHIO. Ohio Fuel Gas Co., 99 N. Front St., Columbus, O. CD 10/10.

Roger Cowden Co., 1824 E. Dorothy Lane, Dayton. O., LB **$78,092**, est. $102,858 (4 bidders) hot mix 8 mi. county roads, and installing hot mix type curbing along Brumbaugh Blvd., DAYTON, O. Comrs. Montgomery Co. Court House, Dayton, O. Bids Aug. 22. CD 8/15.

Jechura Brothers, Telegraph Rd., Toledo, O., CA **$100,231**, sewers, WATERVILLE, O. Village, Village Hall, Waterville, O. G. M. Barton & Assoc., Anthony Wayne Trail, Maumee, O., engrs. CD 4/25, under CA.

Lamm Constr. Co., Litchfield, Mich., CA **$84,972**, sewage disposal plant (Watervile, O.).

Chris Paschen Corp., 1450 N. Clybourn Ave., Chicago, Ill., LB **$329,540**, viaduct addn., N. Ogden Ave. between Chestnut and Evergreen, CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 11/6/53.

▲ **Healy Bros. & Co.**, 9504 W. 47 St., Brookfield, Ill. LB **$1,580,570**, Howard Street Intercepting Sewer, Contr. No. 5, NILES, ILL. Metropolitan Sanitary Dist. of Greater Chicago, 100 E. Erie St., Chicago, Ill. CD 10/10.

WISCONSIN—State Hy. Comn., E. L. Roettiger, state hy. engr., State Office Bldg., Madison,

L. G. Arnold, Inc., P. O. Box 228, Eau Claire, Wis. CA **$522,808**, grade, structures B-17-32 and B-17-33, Int. Rte. 103, 0.265 mi. The Hudson-Eau Claire (Red Cedar River Bridge) Road, Proj. I 103-4 (8), Contr. 1, Dunn Co. Bids Aug. 20. CD 8/29, under LB.

† **Lyons Constr. Co.**, Whitehall, Mich., CA **$568,708**, harbor of Refuge, breakwater, Port Austin, MICHIGAN, U. S. Eng., 1101 Washington Blvd., Detroit, Mich. Bids Aug. 13, CD 7/23.

Reed & Noyce Inc., 826 Filley St., Lansing, Mich., CA **$511,265** (B) storm sewers and (C) pumping station ALPENA, MICH., City, Edward E. Sequin, clk., Alpena, Mich. Bids July 10, CD 7/26.

† **U. S. Eng.**, 1101 Washington Blvd., Detroit, Mich., cancelled bids to have been opened July 24, power bldg. addn., Fort Custer U. S. Air Force Base, ENG-20-064-57-79, BATTLE CREEK, MICH. CD 7/18.

† **U. S. Eng.**, 1101 Washington Blvd., Detroit, Mich., cancelled bids to have been opened July 24, power bldg. addn., Inv. ENG-20-064-57-80, CALUMET, MICH. CD 7/18.

Fairbanks, Morse Co., 600 S. Michigan St., Chicago, Ill., CA **$100,000**, 7 vertical turbine and horizontal centrifugal water pumping units, MIDLAND, MICH. City, Kenneth W. Lybolt, clk., City Hall, Midland, Mich. Bids July 10, CD 7/2.

Pearson Constr. Co., Benton Harbor, Mich., CA **$908,251** water treatment plant addns., reservoir addn., Paw Water Pumping Station, etc., ST. JOSEPH, MICH. City, Leland L. Hill, mgr., St. Joseph, Mich. Bids Aug. 12, CD 8/27, under LB.

† **U. S. Eng.**, 1101 Washington Blvd., Detroit, Mich., cancelled bids to have been opened July 24, power bldg. addn., Inv. ENG-20-064-57-80, SAULT STE. MARIE, MICH. CD 7/18.

† **U. S. Eng.**, 1101 Washington Blvd., Detroit, Mich., cancelled bids to have been opened July 24, power bldg. addn., U. S. Air Force Base, ENG-20-064-57-78, PORT AUSTIN, MICH. CD 7/18.

BUILDINGS—LB & CA

Chell & Anderson, Inc., 5425 N. Kedzie Ave., Chicago, Ill. CA **$200,000**, 1 and part 2 story, brick FACTORY addn., 3591 W. Addison St., CHICAGO, ILL. Chicago Standard Transformer Co., 3501 W. Addison St., Chicago, Ill. Albert F. Langmeyer, 10633 S. Ewing Ave., Chicago, Ill., archt.

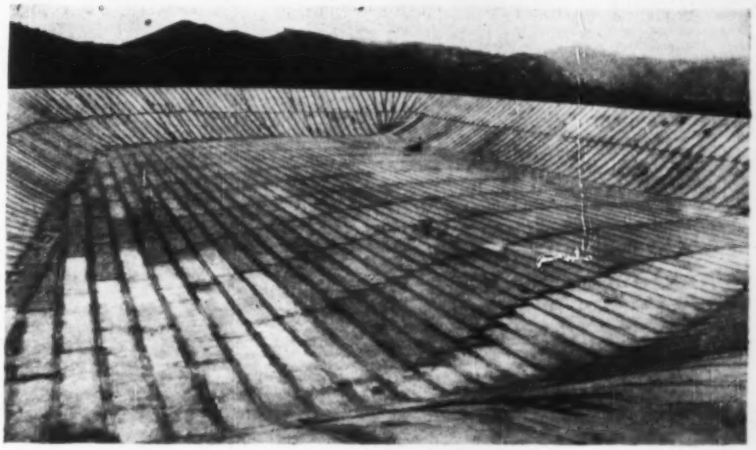
Jos. M. Brickman Co., 7830 W. Lawrence Ave., Chicago, Ill., LB **$500,000**, HIGH SCHOOL addn., 9900 S. Kedzie Ave., EVERGREEN PARK, ILL., School Dist. 231, 9900 Kedzie Ave., Evergreen Park, Ill. Bids Aug. 22. CD 8/15.

Schless Constr. Co., 703 Rogers St., Downers Grove, Ill., LB **$492,000**, 2 story bsmnt. GRADE SCHOOL, S. E. side near Katz subdivision, NAPERVILLE, ILL. School Dist. 78, Aurora Rd., Naperville, Ill. Bids Aug. 20. CD 8/14.

▲ **George A. Fuller Co.**, 111 W. Washington St., Chicago, Ill., CA **$5,000,000**, OFFICE BLDG., N. of Golf Rd. between Rohlwing and Meacham Rds., PALATINE, ILL. Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill. CD 3/15.

A. W. Kutsche Co., 6275 Schaeffer St., Dearborn, Mich. CA **$400,000**, ARTS and CRAFTS SCHOOL, Kirby east of John Rd., DETROIT, MICH., Detroit Society of Arts & Crafts, Wendell W. Anderson Jr., chn., Detroit, Mich. CD 7/2.

Miller-Davis Co., 1029 Portage St., Kalamazoo, Mich., LB **$539,000**, general contract, Edison Elementary SCHOOL addn., KALAMAZOO, MICH. City, C. C. Crawford, secy. School Dist., 306 East Lovell St., Kalamazoo, Mich. Bids Aug. 20, CD 8/1.



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Ward M. Ross Co., 1941 S. Telegraph Rd., Pontiac, Mich., CA **$381,000**, three elementary schools addns., alterations and new elementary school, OXFORD, MICH. Bd. Educ., Oxford Area Community Schools, Gerda Houck, secy., Oxford, Mich. Bids July 30. CD 7/12.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

Iowa, Washington—SWIM POOL, etc.—BA 9/23—City, City Hall, swim pool, wading pool, water treatment, bath house, piping, lighting and site work. $75,000. CD 8/2.

Mo., St. Louis—LUMINARIES—BA 9/24—City, Frank Kriz, acting pres. Bd. P. Service, 304 City Hall, 12th Blvd. and Market St., Zone 3, furnishing, cleaning and maintaining luminaries of the city, for period of 3 years. $811,000. Dpt. P. Utilities, 311 City Hall, engr.

† **Colorado**—BA 9/26—U. S. Eng., P. O. Box 1538, Albuquerque, N. M., repairs and rehabilitation of Templeton Gap Floodway, Colorado Springs, CIVENG 29-005-58-1B. CD 8/28.

† **Colo., Colorado Springs**—PLANETARIUM MUSEUM—BA 10/1—Dpt. Air Force, Box 1670, planetarium museum, incl. entrance, 60x60 ft. circular building shell, 71 ft. diam., from 10 to 13 ft. high Air Force Academy, IFB-5-613-58-12. Skidmore, Owings & Merrill, 3333 N. El Paso St., Colorado Springs, engrs.-archts. CD 9/5/54.

Colo., Denver—SWIMMING POOL—BA 10/1—Loretto Heights Academy, 3001 S. Federal Blvd., swimming pool for academy. $80,000. Larkin & Assocs., 19 E. Gregory St., Kansas City, Mo., engrs. CD 3/22.

Minn., Edina—SWIMMING POOL, etc.—BA 10/1—City, City Hall, swimming pool and bathhouse, etc. $200,000. Larkin & Assocs., 19 East Gregory St., Kansas City, Mo., engrs. CD 8/5.

Mo., Albany—SWIMMING POOL, etc.—BA 10/1—City, City Hall, swimming pool, etc. $73,000. Larkin & Assocs., 19 East Gregory St., Kansas City, Mo., engrs.

Mo., Tarkio—SWIMMING POOL, etc.—BA 10/1—City, City Hall, swimming pool and bathhouse, etc. $90,000. Larkin & Assocs., 19 East Gregory St., Kansas City, Mo., engrs.

† **Missouri**—BA 10/2—U. S. Eng., 420 Locust St., St. Louis, Zone 2, Item 5, realinement of Main St., Cape Girardeau, in Cape Girardeau Flood Protection Proj., CIVENG-23-065-58-10. CD 11/7/55.

† **Colo, Colorado Springs**—UTILITIES—BA 10/8—Dpt. Air Force, Box 1670, utilities Phase II, Air Force Academy, IFB 05-613-58-14. Skidmore, Owings & Merrill, 3333 N. El Paso St., engrs.-archts.

Mo., Marceline—BA 11/1—City, City Hall, sewage treatment plant, auxiliaries, appurtenances, etc. $250,000. Larkin & Assoc., 19 East Gregory St., Kansas City, Mo., engrs.

BUILDINGS—BA

Colo., Denver—SCHOOL—BA 9/18—School Dist. No. 1, 414 14 St., 2 and 3 story, 136,400 sq. ft. Junior High School, Valverde Area, Over $344,000. Gordon D. White & Charles N. Overholt, 615 Columbine St., engrs.-archts. CD 12/13.

Tex., Port Lavaca—COURTHOUSE, etc.—BA 9/27—Calhoun Co., c/o Comrs. Court, Port Lavaca, 3 story, 35,000 sq. ft. courthouse and jail. $400,000. Rustay & Martin, 1811 Crawford St., Houston, archts. CD 8/9.

Tex., College Station—CHEMISTRY—BA 9/20—A&M College of Texas, c/o Sys. Administration Bldg., 4 story, 39,500 sq. ft., masonry chemistry bldg. $600,000. Plans deposit $100. Philip G. Norton, 316 Admin. Bldg., archt. C. J. Godwin, Bryan, Tex., and Bernard Johnson & Assocs., 4926 Travis Bldg., Houston, engrs. CD 6/20.

Tex., College Station—WAREHOUSE, etc.—BA 9/20—A&M College of Texas, c/o System Administration Bldg., College Station, 47,000 sq. ft. warehouse and shop. $350,000-$450,000. Plans deposit $100. Philip G. Norton, 316 Administration Bldg., archt. C. J. Godwin, Bryan, Tex., and Bernard Johnson & Assocs., 4926 Travis Bldg., Houston, engrs. CD 8/23.

Mo., St. Louis—GARAGE—BA 9/24—City, Frank Kriz, acting pres. Bd. P. Service, 304 City Hall, 12th Blvd., and Market St., Zone 3, 151 x 210½ ft. garage, north side of Gratiot St., west of 15th St., for housing and servicing automotive equip. for garbage collection. $310,000. Plans deposit $75. Albert Osburg, 301 City Hall, archt. Walter Crecelius, 301 City Hall, ch. engr. CD 7/12.

† **Tex., McKinney**—HOSPITAL—BA 10/8—Veterans Admin., Munitions Bldg., Wash., D. C., altering bldgs. and utilities Veterans Administration Hospital. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, archt. CD 3/5.

BUILDINGS—SLC

Mo., St. Louis—HOSPITAL PENTHOUSE—Sisters of Incarnate Word, 1640 S. Grand Blvd., Zone 4, soon lets contract 2 story and penthouse living quarters on top of present hospital, air-conditioning entire hospital, Grand Blvd. and Lafayette Ave. $600,000. Drake-O'Meara Assocs., 212 S. Bemiston, Clayton, Zone 5, archts.

HEAVY CONSTRUCTION—LB & CA

Phelps-Drake Co., Inc., 5440 Douglas Dr., Golden Valley (P. O. Minneapolis), Minn., LB **$86,000** (4 bidders), 9,500 lin. ft. 9 in. sanitary sewers, various streets, EDINA, MINN. Village, Mrs. Gretchen S. Alden, clk., Edina, Minn. Bids Aug. 26. CD 8/26.

▲ City, L. Johnson, clk., Minneapolis, Minn., Own Forces, **$1,400,000**. ornamental fluorescent lighting in central downtown dist., MINNEAPOLIS, MINN. C. Erickson, Minneapolis, Minn., city engr.

Riley Constr. Co., 2744 Lyndale Ave. S., Minneapolis, Minn., LB **$110,750** (2 bidders), alterations, addns. to pavilion and refectory at Minnehaha Park, MINNEAPOLIS, MINN. City, Bd. Park Comrs., G. R. Arheson, city purch. agt., 301 City Hall, Minneapolis, Minn. Bids Aug. 20. CD 8/16.

Maudlin Constr. Co., Webster City, Iowa. CA **$81,201**, surfacing, ELDORA, IOWA. Hardin Co., Eldora, Iowa. Bids Aug. 13. CD 8/9.

Joyce Cameron & Co., Keokuk, Iowa, CA **$124,118** (3 bidders), base and bit. surf., FORT MADISON, IOWA. Lee Co., Fort Madison, Iowa. Bids Aug. 15.

Land Constr. Co., 502 Seneca St., St. Joseph, Mo. CA **$136,978**, street imprvs., Div. 1; CA **$28,745**, Div. 2, FORT MADISON, IOWA. City, City Hall, Fort Madison, Iowa. Bids Aug. 15.

B. L. Anderson, 327 Guaranty Bldg., Cedar Rapids, Iowa. CA **$267,840** (3 bidders), crushed stone surf., VINTON, IOWA. Benton Co., Vinton, Iowa. Bids Aug. 12.

† **Massman Constr. Co.**, 3917 Broadway, Kansas City, Mo. CA **$519,945**, est. $519,150. dikes and revetments from Weldon Springs to Amazon Bends, Missouri River, CIVENG-23-028-57-135, MISSOURI. U. S. Eng., Federal Office Bldg., Kansas City 6, Mo. Bids July 25. CD 8/16, under LB.

† **Patton, Tully Transportation Co.**, att. F. L. Phipps, P. O. Box 28, Memphis, Tenn. LB **$189,659**, est. $187,260, timber piling dikes, Mississippi River, 38 to 40 mi. above Ohio River, near Commerce, Scott Co., CIVENG-23-026-58-3, MISSOURI. U. S. Eng., 420 Locust St., St. Louis 2, Mo. Bids Aug. 26. CD 7/23.

† **W. A. Lynn**, 1022 Trust Bldg., Lincoln, Neb. CA **$537,505**, repair dike and revetment from Qunidaro Bend to Lexington Reach, Missouri River, CIVENG-23-028-58-5, MISSOURI, U. S. Eng., 1900 Federal Office Bldg., Kansas City 6, Mo. Bids Aug. 13. CD 8/19, under LB.

Bridges Paving Co., 1337 S. Kingshighway, St. Louis 10, Mo. LB **$83,730**, resurf. Washington Ave., 4th St. to Jefferson Ave., ST. LOUIS, MO. City, Frank J. McDevitt, pres. Bd. P. Service, 304 City Hall, 12th Blvd. and Market St., St. Louis 3, Mo. Bids Aug. 27. CD 7/30.

NORTH DAKOTA—State Hy. Dpt., Bismarck,

Milton Rue Co., Bismarck, N. D., LB **$367,202**. structural and incid. 0.062 mi. Interstate Rte. No. 1 near southwest Fargo, Proj. I-01-8 (10) Cass Co. Bids Aug. 23. CD 8/8.

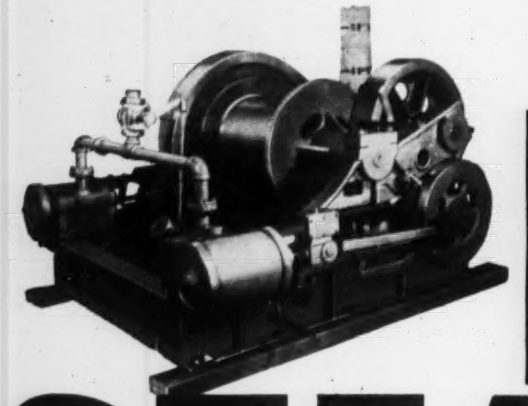
▲ **NORTH DAKOTA**—State Hy. Dpt., Bismarck, Bids opened 8/23,

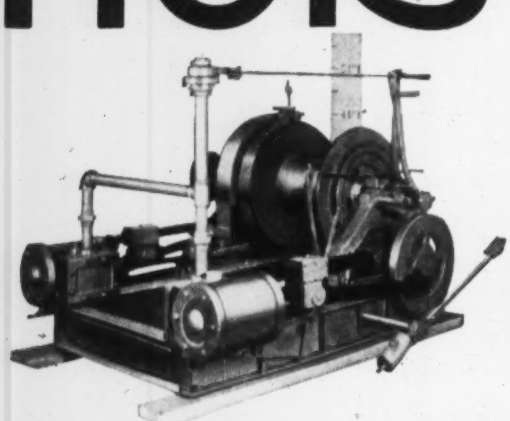
N. D.—**Haggart Constr. Co.**, 667 2 Ave. N., Fargo, N. D., LB **$278,334**. base, b. conc. surf. 15.367 mi. F-258 (13), Mountrail Co.;

N. D.—**Tennefos Constr. Co.**, 62½ Broadway, Fargo, N. D., LB **$242,848**. base, bit. surf. tr. 26.721 mi. S-216 (5), Emmons and McIntosh Counties;

N. D.—**Wm. Collins & Sons Inc.**, 606 Black Bldg., Fargo, N. D., LB **$283,159**. base, b. conc. surf. 13.539 mi. S-411 (6) and SAP-419, Richland Co.;

(Continued on page 121)





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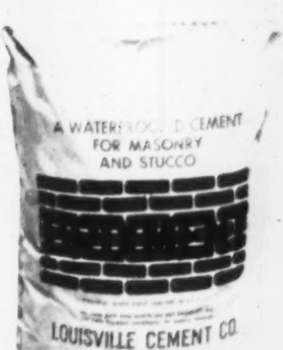
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New Orleans: 644 Nat'l Bank of Commerce Bldg. • **Atlanta**: 1401 Peachtree St.

(Continued from page 118)

N. D.—**Struksnes Constr. Co.**, Minot, N. D., LB **$157,225**, tr. serv. grav., etc. 12.629 mi. S-423 (5), Williams Co.;

N. D.—**John J. Mayo d/b/a, Joe Mayo & Son**, Cavalier, N. D., LB **$240,981**, tr. serv. grav., etc. 22.131 mi. S-495 (3), Barnes Co.;

N. D.—**Clarence Wiseman**, Lakota, N. D., LB **$118,295**. grav., sub-base, etc. 12.292 mi. S-286 (2), Pembina Co.;

N. D.—**W. H. Noel Co.**, Jamestown, N. D., LB **$108,514**. base, bit. surf. 5.232 mi. S-474 (8) and US 474 (9), Morton Co. CD 8/8.

Northern Constr. Co., 633 1 Ave. N., Grand Forks, N. D. CA **$63,657**. water mains, GRAND FORKS, N. D. City, City Hall, Grand Forks, N. D. Bids Aug. 12.

▲† **Ace Constr. Co.**, 2110 S. 55 St., Omaha, Neb., CA **$1,784,754**, approach fills, Chicago, Milwaukee, St. Paul & Pacific R.R. Co., Grand River Bridge, Oahe Reservoir, Inv. 25-066-58-2 near Mobridge, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Aug. 8. CD 8/14, under LB.

City, c/o Howard Payne, clk., rejected bids July 18, S. Jersey Creek. storm and sanitary sewer extending from 3rd to 10th St., KANSAS CITY, KAN. LB **$278,845**. CD 7/31, under LB.

▲ **TEXAS**—State Hy. Comn. Austin,

Tex.—**M. E. Ruby & D. B. Denney, Jr.**, P. O. Box 96, San Marcos, Tex. CA **$581,418**, flex. base and asph. paving, 8.928 mi. Hy. US 81 Proj. F 793 (1) Dimmit Co.;

Tex.—**Flenniken Constr. Co.**, P. O. Box 634, Shreveport, La. CA **$699,027**, roadbed treat. c. conc. pavt. and flex. base shoulders 7.900 mi. Hy. US 82 Proj. F 315 (10) Red River Co. Bids Aug. 20, awarded Aug. 28. CD 8/26, under LB.

TEXAS—State Hy. Comn., Austin,

cancelled bids to have opened Sept. 18, grading, storm sewers c. conc. 1.112 mi. Hy. US 77 Proj I 22 (18) Dallas Co.; grading, structures, base and surf. 6.101 mi. Hy. FM 1488 Proj. S. 2206 (1). Montgomery Co.; grading, structures, base and surf. 5.154 mi. Hy. FM 1074 Proj. S 1721 (2) San Patricio Co. CD 8/23.

▲ **TEXAS**—State Hy. Comn., Austin,

H. B. Zachary Co., P. O. Box 10188, San Antonio, Tex. CA **$1,292,745**, flex. base and hot mix. A. C. P. 12.278 mi. Hy. US 80 Proj. I 444 (43) Nolan Co. Bids Aug. 20, awarded Aug. 28. CD 8/23.

▲ **TEXAS**—State Hy. Comn., Austin,

C. Hunter Strain & W. L. Barnes, Contractor, P. O. Drawer, 1631, San Angelo, Tex. CA **$1,077,363**, base two courses surf. treat. and b. conc. 30.479 mi. Hy. US 67 Proj. F 656 (1) Reagan Co. Bids Aug. 21, awarded Aug. 28. CD 8/27, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,

Tex.—**Tom Tellepsen**, P. O. Box 2536, Houston, Tex. CA **$541,322**, flex. base and two course surf. treat. 9.502 mi. Hy. FM 1960 Proj. S 1868 (5) Harris Co.;

Tex.—**W. Paul Carlisle**, P. O. Box 12116, Dallas, Tex. CA **$508,449**, grading, structures 2.072 mi. Hy. US 77 Proj. I 230 (6) Denton Co.;

Tex.—**Allen Keller Co.**, P. O. Box 393, Fredericksburg, Tex. CA **$539,908**, flex. base and two course surf. treat. 8.065 mi. Hy. US 290 Proj. F 177 (3) Grand total $1,589,679. Bids Aug. 21, awarded Aug. 28. CD 8/27, under LB.

TEXAS—State Hy. Comn., Austin,

cancelled bids to have opened Sept. 17, flex. base and c. conc. paving Proj. MC 2-1-10, Tarrant Co.; and grading, structures, base and surf. 5.162 mi. Hy. FM 1822, Proj. S 2201 (2). CD 8/23.

TEXAS—State Hy. Comn., Austin,

cancelled bids to have opened Sept. 17, bridge widen, grading, structures, base and surfacing 1.533 mi. Hy. State 159, Proj. C 409-1-8, Austin Co. CD 8/23.

City, International Airport, City Hall, El Paso, Tex., cancelled bids to have opened Aug. 22, Hangar, EL PASO, TEX. Est. **$250,000**. CD 8/15.

Lewis & Lewis, 3800 S. University Dr., Fort Worth, Tex., LB **$159,892**, est. $157,039, Brookside Addn. Storm Drain, FORT WORTH, TEX. City, c/o Thos. A. McCann, mayor, Fort Worth, Tex. C. M. Thelin, c/o owner, dir. Pub. Wks. Bids Aug. 27. CD 8/23.

City, City Hall, Houston, Tex., Force Account. **$300,000**. traffic control sys., electric extension, HOUSTON, TEX. CD 2/2/56.

City, City Hall, Houston, Tex., Force Account. **$75,000**, last of street blacktopping, HOUSTON, TEX. Frank Baldwin, Direc. Pub. Wks. Utilities, c/o owner, engr. CD 7/30/54.

City, City Hall, Houston, Tex., Force Account. **$100,000**. parks and recreation work, HOUSTON, TEX. Frank Baldwin, Direc. Pub. Wks. Utilities, c/o owner, engr. CD 2/2/56.

E. M. **Bohusky**, Mercedes, Tex., LB **$89,385**, est. $75,000, street imprvs., MERCEDES, TEX. City, City Hall, Mercedes, Tex. Joe B. Winston, Mercedes, Tex., engr. Bids Aug. 21. CD 4/22.

City, City Hall, Sterling City, Tex., Purchase and Hire. **$60,000**, water lines and sys. imprvs., STERLING CITY, TEX. CD 8/6.

City, City Hall, Sterling City, Tex., Purchase and Hire. **$77,500**, sanitary sewer lines, STERLING CITY, TEX. CD 2/17/56.

Austin Eng. Co., 203 Riverside Dr., Austin, Zone 4, Tex., CA **$744,475**, Contr. 577 A, water program 16- to 36-in. water mains, appurtenances, TYLER, TEX. City, City Hall, Tyler, Tex. Bids Aug. 14. CD 8/21, under LB.

Spiegel Lumber & Bldg., Laramie, Wyo., LB **$232,571**, est. $321,000, sewage disposal plant, LARAMIE,

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15	1/163,000
20	1/190,000

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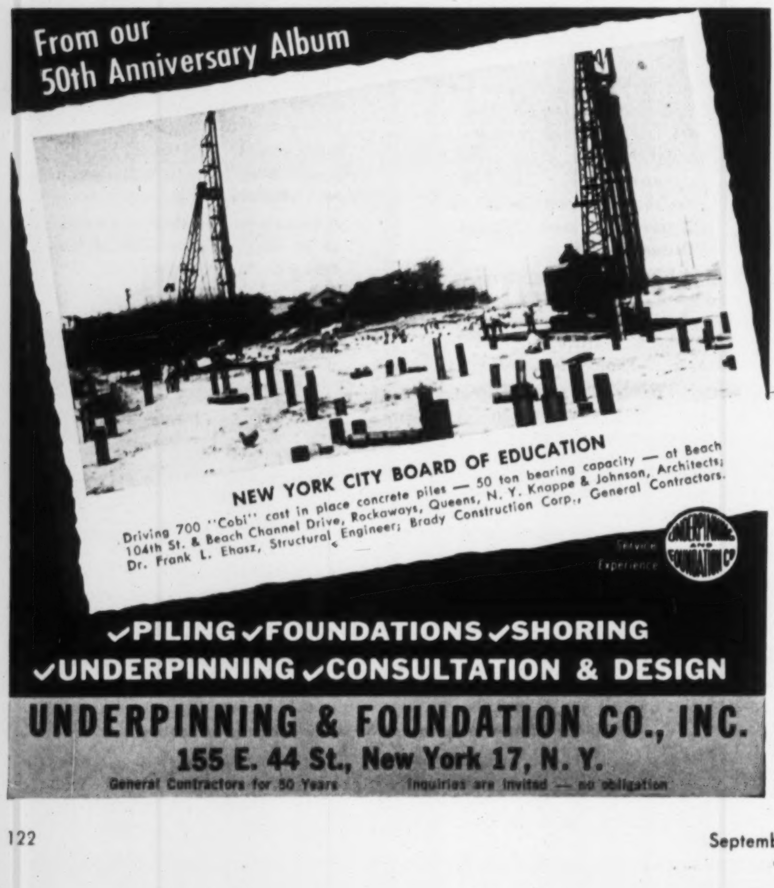

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WYO. City, City Hall, Laramie, Wyo. Bids Aug. 17. CD 8/22.

City, City Hall, Colorado Springs, Colo., **rejected bids** Aug. 21, 9 m. g. water filtration plant, COLORADO SPRINGS, COLO. Est. **$300,000**. CD 8/6.

† **Consolidated Nurseries of Colorado**, 2645 W. Alameda St., Denver, Colo., LB **$74,612**. plant material, Air Force Academy, IFB 05-613-58-10, COLORADO SPRINGS, COLO. Dpt. Air Force, Box 1670, Colorado Springs, Colo. Skidmore, Owings & Merrill, 3333 E. El Paso St., Colorado Springs, Colo., engr.-archts. Bids Aug. 19. CD 8/5/54.

BUILDINGS—LB & CA

Naugle-Leck, Inc., Baker Bldg., Minneapolis, Minn., LB **$548,444** (13 bidders), STUDENT CENTER, St. Paul campus, ST. PAUL, MINN., Regents of the University of Minnesota, 404 Administration Bldg., Minneapolis, Minn. Bids Aug. 27. CD 8/21.

Razor Constr. Co., Clinton, Iowa, general contract CA **$772,929**, W. J. Yourd GYMNASIUM and VOCATIONAL UNIT at high school, CLINTON, IOWA. Bd. Educ., Clinton, Iowa, McCann-Prout & Assocs., Clinton, Iowa, archts. Bids Aug. 14. CD 10/11.

Langer & Assocs., 225 Jewet Bldg., Des Moines, Iowa, LB **$728,280**, Manhattan APARTMENTS, OKOBOJI, IOWA, Topro Corp., Spirit Lake, Iowa. Bids July 11. CD 7/15.

Lavender Constr. Co., 313 W. 13th St., Texarkana, Ark., LB **$347,000**, Base Bid, concrete, steel, masonry Newman CLUB CENTER, for students of University of Arkansas, incl. 11,506 Newman Hall, 6,343 sq. ft. chapel, etc., FAYETTEVILLE, ARK. Newman Club Foundation of Catholic Diocese of Little Rock, 305 W. 2nd St., Little Rock, Ark. Mott, Mobley & Horstmen, Merchants National Bank Bldg., Fort Smith, Ark., archts. Bids Aug. 21.

Constant Constr. Co., Box 126, Lawrence, Kan., CA **$800,000**, RIBBON MANUFACTURING PLANT, LAWRENCE, KAN., Hallmark Cards, Inc., 25th and McGee Sts., Kansas City, Mo. CD 5/22.

Dick N. Richards Constr. Co., 11232 Cindrella St., Dallas, Tex. Owner Builds. **$510,000**, 10 DWELLINGS, in Hockaday Square division, DALLAS, TEX. CD 8/26.

Staarnor A. Bowman, Contractor, 10579, Denton Dr., Dallas, Tex. Owner Builds. **$525,000**, 10 DWELLINGS, DALLAS, TEX. CD 8/21.

Thed Constr. Co., c/o J. C. Thedford, 5759 Thrush St., Houston, Tex., Owner Builds. **$369,225** (A) 27 DWELLINGS (B) **$348,115**, 23 DWELLINGS HOUSTON, TEX. CD 8/19.

Richard Wright, c/o Crochet & Carrol, archts., 6332 Long Dr., Houston, Tex., Purchase and Hire. **$358,000**, 25 DWELLINGS, **$378,150**, 30 DWELLINGS, HOUSTON, TEX. CD 8/19.

R. G. Farrell, Box 137, Odessa, Tex., CA **$551,151**, SHOPPING CENTER, 8th St. near Crescent St., ODESSA, TEX. Great Oil Basin Securities Co., c/o Floyd L. Schulz, Odessa, Tex. CD 8/28.

Jones & Williams Constr. Co., Box 2097, Waco, Tex., CA **$736,990**, Base Bid, JUNIOR HIGH SCHOOL, Crestview Hillcrest Subdivision, WACO, TEX. Waco Independent School Dist., Waco, Tex. Bids Aug. 21. CD 8/29, under LB.

▲ **Spiegelberg Lumber & Bldg. Co.**, 259 W. Fremont St., Laramie, Wyo., LB **$1,802,781**, 2 story, bsmnt., 120x337 ft. STATE HY. OFFICE BLDG. for state hy offices, patrol offices and hy. shops, CHEYENNE, WYO. State Hy. Comm., State Office Bldg., Cheyenne, Wyo. Sam C. Hutchings, Jr., 1902 Thomas Ave., Cheyenne, Wyo., engr.-archt. Bids Aug. 22. CD 7/17.

▲ **Western Knapp Co.**, 760 Folsom St., San Francisco, Calif., CA **$2,500,000**. design and construct 250-ton-a-day uranium processing MILL, BEDROCK, COLO. Atomic Fuel Extraction Co., and Nuclear Resources Inc., 230 Pitkin St., Grand Junction, Colo.

Chicago Bridge & Iron Wks., 1654 E. 21 St., Tulsa, Okla., CA **$375,000**. nine 100,000 gal. gasoline and diesel products steel TANKS, TECUMCARI, N. M. Shamrock Oil & Gas Corp., First National Bank Bldg., Amarillo, Tex.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., San Francisco**—BA 10/3—City and San Francisco Co., Pub. Utilities Comn., 29,200 ft. 12 in. diam. tunnel connecting Cherry Dam with Penstocks at Cherry Power House; 5,850 ft. 81x11 ft. tunnel to divert runoff from Lake Eleanor watershed into Cherry Reservoir, $9,300,000. CD 11/11/55.

BUILDINGS—BA

† **Washington**—HOUSES—BA 9/21—U. S. Forest Service, Box 4137, Portland, Ore., 2 houses at Quinault Ranger Station.

Calif., Al Tahoe—SCHOOL—BA 9/26 (tentative)—Lake Tahoe Unified School Dist., c/o Supt., Box 217, Al Tahoe, South Tahoe Elementary School. $525,000. Plans deposit $25. Jack Buchter, 61 Moraga Hy., Orinda, archt. CD 4/3.

▲ **Calif., Patton**—WARD BLDGS.—BA 10/2—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, two 2 story, 225,000 sq. ft. floor area anl 8 roofed shelter areas, ward bldgs., incl. utilities W.O. 3774 GC, 4007GC-50. $4,000,000. Plans deposit $50. CD 6/3/55.

HEAVY CONSTRUCTION—LB & CA

IDAHO—State Hy. Dpt., Boise,

Neilson & Miller, Twin Falls, Idaho, LB **$244,726**, constr. roadway, drainage structures and 40 ft. concrete bridge and plantmix bit. surf. 1.382 mi. **N. S. 26**

(Continued on page 124)

Maybe you're paying for top quality "Commercial Grade" Roller Bearings...BUT ARE YOU GETTING THEM?

Cutaway view of Rollway Tru-Rol® segmented-retainer roller bearing . . . one of three distinct types of Tru-Rol bearings available.

True, there's a wide difference in quality and cost between the low-range and high-range of any "commercial grade" bearing. But every Rollway Tru-Rol "commercial grade" bearing approximates as closely as possible maximum standards of construction consistent with the price.

Take the matter of separators, for example: In Rollway bearings, separators give maximum guidance to each roller. The result is greater total load capacity and longer life.

Equal spacing of rollers means uniform distribution of load. The result is the elimination of destructive "pulse" and vibration.

Moreover, separators are of deep section, formed to the curve of the rollers, giving true axial alignment, smooth-surface contact and an even lubrication film on each roller.

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Retainer Operation

☐ Is the retainer roller-supported, to reduce sliding friction?

Retainer Construction

☐ Is the retainer strong enough to withstand shock loads and sudden reversals?

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☐ Are all rollers equally separated, or do some rub against each other in opposed-motion friction?

☐ Are rollers distributed evenly to prevent "pulse" and vibration?

Roller Construction

☐ Are the rollers crowned for optimum load distribution?

For Top Quality in Every Detail Buy Tru-Rol and Be Sure!

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Tru-Rol
ROLLER BEARINGS

(Continued from page 122)

and crushed grav. and cover coat in stockpile. Bids Aug. 20. CD 8/20.

IDAHO—State Hy. Dpt., Boise,

Western Constr. Co., 1695 Yellowstone Ave., Pocatello. LB **$107,801**, recondition roadbed, constr. drainage structures and 28 ft. concrete bridge and roadmix bit. surf. 5.177 mi. Parker-Egin Rd. Bids Aug. 20. CD 8/22.

▲ **Rocky Reach Dam Builders** (Arundel Corp., Pier 2, Baltimore, Md., L. E. Dixon Co., 18404 Sherman Way, Reseda, Calif., The Hunkin-Conkey Constr. Co., 1740 E. 12th St., Cleveland, O., American Pipe & Constr. Co., 4635 Firestone St., South Gate, Calif. and Guy F. Atkinson Co., 10 West Orange St., South San Francisco, Calif.) Wenatchee Wash. CA **$52,413,078**, completing Rocky Reach Dam, Columbia River, WASHINGTON. Chelan Public Utility Dist., 327 N. Wenatchee Ave., Wenatchee, Wash. CD 7/25, under LB.

Thorburn & Logozo, 4608 36 Ave. S.W., Seattle, Wash., CA **$92,652**, est. $96,201 (5 bidders) water mains in E. 125 St., SEATTLE, WASH. City, County-City Bldg., Seattle 4, Wash. Bids Aug. 21. CD 3/21.

Martin Bros., Box 638, Concord, Calif. CA **$242,109** (9 bidders) sanitary sewers, appurtenances. Dist. No. 36 (pipe, manholes, pressure reliefs, etc.), near WALNUT CREEK, CALIF. Central Contra Costa Sanitary Dist., 1250 Springbrook Rd., Walnut Creek, Calif. CD 8/13/56.

BUILDINGS—LB & CA

▲† **Howard S. Wright Constr. Co.**, 414 Pontius St., Seattle, Wash., **S. Birch & Sons Constr. Co.**, Ford Bldg., Great Falls, Mont. and **D. L. Cheney**, Seattle, Wash. CA **$6,044,695**, (joint venture) constr. flight engine test facility at National Reactor Testing Station, ARCO, IDAHO. Atomic Energy Comn., Idaho Operations Office, P. O. Box 1221, Idaho Falls, Idaho. Bids June 5. CD 6/11.

W. G. Woerner, 12717 8 Ave. N.W., Seattle, Wash., Day Labor, **$500,000**, 69 unit MOTEL, 2106 5 Ave., SEATTLE, WASH. Cushman & Edwards, 2nd and Cherry Bldg., Seattle, Wash., archts.

H. S. Wright & Co., Inc., 414 Pontius St., Seattle, Wash., Day Labor, **$100,000**, 37,800 sq. ft. rein.-con. WAREHOUSE for Wash. Steel Products Co., SEATTLE, WASH. S. G. Morrison, Douglas Bldg., Seattle, Wash., archt.

Lamon Constr. Co., 881 Market St., Yuba City, Calif. CA **$703,882**, (5 bidders) 1 story, wood frame, concrete and tile floors, Etna Union HIGH SCHOOL, incl. GYMNASIUM, ETNA, CALIF. Etna Union High School Dist., c/o Supt., Etna, Calif. Bids Aug. 22. CD 7/26.

▲ **Harvey A. Nichols Co.**, 926 East Lawson Ave., Los Angeles, Calif., LB **$1,574,300** (5 bidders) general work, 2 story, 24,000 sq. ft., 1 story lecture wing, SCIENCE BLDG. addn., LONG BEACH, CALIF. State Div. Architecture 1100 S. Grand Ave., Los Angeles, Calif. Bids Aug. 28. CD 7/26;
Murray Co., 13130 S. Normandy Ave., Gardena, Calif., LB **$349,960** (8 bidders) mechanical work (Long Beach, Calif.).

Ekelin & Small, Box 8, Salinas, Calif. LB **$234,150** (10 bidders) 52,000 sq. ft. concrete tilt-up constr. INDUSTRIAL BLDG. and 1 story, 40x180 ft. OFFICE, Bardin Ave., SALINAS, CALIF. Streater, Inc., c/o Geo. S. Nolte, engr., 3850 Middlefield Rd., Palo Alto, Calif.

CANADA

HEAVY CONSTRUCTION—BA

Ont., Streetsville—BA 9/16—Village, Village Hall, sewage treatment plant exten., supplying certain materials for and constr. grit removal facilities, primary settling tank, aeration tanks, final settling tank, digestion tank, chlorination chamber, blower and pump bldg. and outfall sewers. Over $75,000. Plans deposit $50. Proctor & Redfern, 11 Jordan St., Toronto, engrs.

Ont., Toronto—BA 9/16—Municipality of Metropolitan Toronto, 67 Adelaide St. E., structural steel and rein.-con. bridge, over Mimico Creek, Bloor St. W. $75,000. Plans deposit $50.

HEAVY CONSTRUCTION—LB & CA

▲ **Poole Eng. Co. Ltd.**, 10503 109 St., Edmonton, Alta., CA **$2,368,187**. paving about 51.4 mi. Northwest (Alcan) Hy. from Dawson Creek to vicinity of Fort St. John, DAWSON CREEK, B. C. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids July 11, awarded Aug. 21. CD 7/22, under LB.

Canadian Comstock Co. Ltd., 1638 Carling Ave., Ottawa, Ont., LB **$258,258** (5 bidders) primary electrical services and P.O.L. pipe line (Parts 6 and 7) R.C.A.F. Station, FORT CHURCHILL, MAN. Defence Contr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. CD 8/29.

Bird Constr. Co. Ltd., Sargent and Erin Sts., Winnipeg, Man., LB **$674,939**. addnl. development at Winnipeg Airport, WINNIPEG, MAN. Dpt. Transport, Hunter Bldg., Ottawa, Ont. CD 5/3.

▲ **ONTARIO**—Dpt. Hys., Parliament Bldgs., Toronto, Ont.—**Curran & Briggs Ltd.**, 61 Haverson Blvd., Toronto, Ont., CA **$1,231,074**, Contr. 57-132, grading, culverts, gran. base Trans Canada Hy. 17 Fenton Lake;

Ont.—**Peel Constr. Co. Ltd.**, Hy. 7 west, Brampton, Ont., CA **$797,964** Contr. 57-121, gran. base, hot mix paving 14.8 mi. Trans Canada Hy. 17, Thessalon. Bids Aug. 21, awarded Aug. 23. CD 8/28, under LB.

Orsini Constr. Ltd., 363 A Rogers Rd., Toronto, Ont., LB **$235,204** (3 bidders) pedestrian bridge at Station 113 of expressway, rein.-con. structure with structural steel beams, Lakeshore Expressway, TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. A. D. Marigson & Assocs. Ltd., 30 Eglinton Ave. E. and DeLeuw Cather & Co. Canada Ltd., 52 St. Clair Ave., Toronto, Ont., engrs. CD 11/30/54, under Streets and Roads.

Miller Paving Ltd., 56 Blake St., Torpnto, Ont., LB **$134,577**, paving Midland Ave. from Park St. to Eglinton Ave., TORONTO, ONT. Scarborough Twp., 2001 Eglinton Ave., Toronto, Ont. CD 6/21/56.

BUILDINGS—LB & CA

▲ **Dell Constr. Co. Ltd.**, 2461 Bloor St. W., Toronto, Ont., CA Est. **$1,160,000**. HIGH SCHOOL, 14-acre site, Streetsvile, BRAMPTON, ONT. Brampton District High School Bd., c/o Craig, Madill, Abram & Ingleson, archts., 290 Merton St., Toronto, Ont. Bids Aug. 16, awarded Aug. 22. CD 7/23.

Frid Constr. Co., Harbor Administration Bldg., Hamilton, Ont., CA Est. **$400,000**. 1 story, 160x265 ft., brick, concrete block PLANT, LONDON, ONT. General Motors Diesel Co., E. V. Rippingille, mgr., Oxford St. E., London, Ont. Awarded Aug. 26. CD 3/2/56.

▲ **Anglin-Norcross Ontario Ltd.**, 224 Davenport Rd., Toronto, Ont., CA Est. **$6,000,000** (8 bidders) superstructures for all buildings in SUGAR REFINERY EXPANSION, 10-acre site at foot of Jarvis St., TORONTO, ONT. Canada & Dominion Sugar Co. Ltd., 91 Tecumseh St., Chatham, Ont. Bids Aug. 7, awarded Aug. 26. CD 7/29.

Dickie Constr. Co. Ltd., 17 Yorkville Ave., Toronto, Ont., CA **$105,000**. 1 story, 67x124 ft., block brick PLANT exten., WELLAND, ONT. Christie's Bread Ltd., 236 Burgar St., Welland, Ont. Agnew & Ludlow, 25 Merton St., Toronto, Ont., archts. Awarded Aug. 22.

Nordic Development Corp., 6005 Cote de Liesse Rd., Montreal, Que. Owner Builds. **$350,000**. 1 and 2 story, 225x248 ft., concrete, steel, brick, block WORKSHOP and OFFICE, Cote Vertu, MONTREAL, QUE.

Benjamin Robidas Ltd., 164 rue du Moulin, Drummondville, Que., CA **$597,000**. PUBLIC BLDG., George and Elizabeth Sts., SOREL, QUE. Dept. P. Wks., Hunter Bldg., Ottawa, Ont. Awarded Aug. 20. CD 6/27, under LB.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Boulder Creek—San Lorenzo Valley Water Dist., Central Ave., Boulder Creek, voted bonds, water supply sys. **$950,000**.

▲ **Conn., Milford**—Milford Water Co., 49 River St., larger pump at Maltby Lakes, larger water mains, new pumping stations, erecting new standpipes, Milford, Orange and West Haven. **$2,000,000**. Malcolm-Pirnie Engineers, 25 W. 43 St., New York, N. Y., consult. engrs. Joseph A. Novaro, c/o owner, ch. engr. CD 8/15.

Kan., Lawrence—City, Harold Horn, mgr., City Hall, bond election Sept. 10, WW sys. improvs., exten. incl. Northwest water transmission main, **$200,000**; water transmission main to 8th and Kentucky St., **$133,000**; and water treatment plant addn., settling basins, **$275,000**. Black & Veatch, 1500 Meadow Lake Parkway and P.O. Box 8450, Kansas City 14, Mo., consult. engrs. CD 8/16.

Mo., Altenburg—Town, Town Hall, Curt J. Meinz, city clk., WW and distr. sys. **$70,000**. Charles C. Redman, Kennett, Mo., consult. engr. (**Correction**—cost). CD 8/16.

Mo., Waynesville—City, Clarence E. Moss, city clk., City Hall, WW and distr. sys. and sewers extens, impvs. **$125,000**. Heagler & Son, Rolla, consult. engrs.

▲ **Mont., Great Falls**—City, City Hall, voted bonds Aug. 20, imprv., extend city water sys., incl. lines and new tank reservoir. **$2,600,000**. CD 7/30.

O., Grand Island—Village, Village Hall, WW to serve Staley Rd. west of Base Line Rd. **$250,000**.

O., Versailles—Bd. P. **Affairs**, V. V. Cottrell, supt., City Hall, imprv. WW, incl. new well, double capacity of filters and mixing chambers, etc. **$100,000**.

Okla., Altus—City, City Hall, water purification plant addn. **$100,000**. John W. Riley, Altus, engr. CD 7/21/55.

▲ **Okla., Bartlesville**—City, City Hall, voted bonds June 27, WW extension. **$2,650,000**. Black & Veatch, 1500 Meadow Lake Parkway, Kansas City, Mo. consult. engrs. CD 6/18.

Pa., Harrisburg—State Dpt. Property & Supplies, Capitol Bldg., replacing water pipe for fire purposes in State Capitol. **$110,000**. Bids soon.

Tenn., Whitehall—City, City Hall, water sys to bring water from Sequatchie River. **$440,000**. Campbell Wallace, Box 318, Knoxville, consult. engr. CD 7/26.

Tex., Jefferson—City, c/o Jefferson Water Dist., voted bonds Aug. 10, 2 water storage tanks, **$50,000**; water pumping plant, **$100,000**; water treatment plant, **$225,000**; water main and distr. lines, **$90,000**; WW sys. rehabilitation, **$50,000**. CD 8/2.

Tex., Josephine—Collin Co. Fresh Water Supply Dist. 1, Josephine, waterworks sys. **$126,000**.

Tex., Yoakum—City, City Hall, water lines **$90,000**; water storage pump, **$60,000**.

Ont., Kitchener—City, City Hall, reservoir and water mains near Mannheim, **$750,000**. CD 1/25/45.

Que., Kenogami—Ville de Kenogami, Town Hall, Kenogami, reconstr. water supply sys., incl. new mains and reservoir. **$708,000**. CD 3/26/56.

SEWERS, WASTE DISPOSAL

Ariz., Scottsdale—Town, Town Hall, sewerage sys. **$618,000**.

Ill., Hartford—Village, Joe Stump, village clk., Village Hall, Delmar St., sewage sys. imprv. incl. sewage disposal plant, **$100,000**.

▲ **Ind., Fort Wayne**—Bd. P. Wks., addns., imprvs. to sewage treatment plant, incl. 1 addnl. raw sewage pump; 6 addnl. primary settling tanks; 2 addnl. two-pass aeration tanks; replace one 7,000 c.f.m. blower with larger one; 2 addnl. final settling tanks; two addnl. sludge digesters; **$3,700,000**; sludge lagoons, covering 34 acres, and drying area covering 10 acres, within a levee, **$330,000**. Consoer, Townsend & Assocs., 360 E. Grand Ave., Chicago 11, Ill., consult. engrs. CD 4/10.

Mass., Ludlow—Town, Sewer Dpt., North St., sewer Prospect St. and Stevens Terrace. **$160,000**. Tighe & Bond, Inc., Bowers and Pequot Sts., Holyoke, consult. engr. Constr. 1958.

Mich., Farmington—Farmington Twp., Albert Gain, sup., Farmington, interceptor sewer, **$92,000**; disposal plant, **$90,000**, Franklin Knolls section.

Minn., Hayfield—Village, M. Rouhoff, clk., sewer sys. imprvs., and sewage treatment plant. **$285,000**. K. M. McGhie, Rochester, Minn., consult. engr. CD 6/21.

O., Groveport—Village, Village Hall, Groveport, defeated bonds Aug. 14, sewage disposal plant for village. **$335,000**. Jennings Lawrence, 1392 King Ave., Columbus, consult. engr. CD 7/15.

▲ **O., Mansfield**—City, City Hall, sewerage system expan., incl. Phase I, low level sewers, lift station on low level line and Southeast Interceptor line, Total est. **$8,500,000**. Floyd G. Browne & Assoc., Marion, consult. engrs. CD 11/11/55.

O., Timberlake—Village of Timberlake, Village Hall, Willoughby, bond election Nov. 5, sewers, **$125,000**.

O., Versailles—Bd. P. Affairs, V. V. Cottrell, supt., City Hall, sewage imprvs. to double aeration capacity, installing new digester, enlarging primary settling tank and final settling tank, etc. **$100,000**.

Pa., Baden—Municipal Auth. of Baden, Baden, plans by Gannett, Fleming, Corddry & Carpenter, 110 Shady Ave., Pittsburgh, sewage disposal plant, **$600,000**. CD 2/19/48.

R. I., East Providence—Town, Sewer Comm., c/o Town Council, East Providence, install lateral sewers north of Taunton Ave., **$159,000**. Charles A. Maguire & Assoc., Turks Head Bldg., Providence, consult. engrs.

Tex., Fort Worth—City, c/o Thos. A. McCann, Mayor, Village Creek Sanitary Sewers exten. **$150,000**. **Freese & Nichols**, 407 Danciger Bldg., Fort Worth, Tex., consult. engrs. CD 2/8/56.

Tex., Jefferson—City, c/o Jefferson Water Dist., voted bonds Aug 10, sewage treatment plant. **$125,000**. CD 8/1.

Tex., Yoakum—City, City Hall, sanitary sewer lines **$75,000**; sewage disposal plant, **$75,000**.

BRIDGES

CALIFORNIA—State Div. Hys., 1120 N. St., Sacramento,
Tuolumne Co.—constr. line change on Sign Rte. 49 at Mormon Creek to consist of culvert and approaches on new alignment at Mormon Creek Bridge. **$150,000**. Bids in September.

▲ **D. C., Wash.**—D. C. Govt. Dpt. Hys., 499 Pa. Ave. N.W., Benning Rd. Viaduct over B & O R.R., **$550,000**; 11th St. Bridge over Anacostia River, **$3,500,000**; underpass at S. Capitol and M Sts., **$900,000**; reconstr. railroad structure widening and repaving Rhode Island Ave. N.E. 4 St. and District line **$2,600,000**.

Ind., Indianapolis—Comrs. Marion Co., Courthouse, bridge over Big Eagle Creek, on Salt Creek Rd., Wayne Twp., bridge over Buck Creek, on Pentecost Rd. Franklin Twp., bridge over Buck Creek, on Thompson Rd. Franklin Twp., **$464,000**, Boyd E. Phelps Co., K of P Bldg., consult. engrs.; replace covered bridge over Indian Creek, **$150,000**, A. W. Fraps & Assocs., 7928 Meadowbrook St., consult. engrs. CD 4/8.

O., Akron—City, Leo. Walter, serv. dir., City Hall, reconstr. Prospect St. Bridge and approaches. **$251,942**. Beiswenger & Hoch, 1006 Grant St., consult. engrs. CD 7/24.

O., Youngstown—Mill Creek Park Bd. Comrs., 216 Glenwood St., Youngstown, 169 ft. span 52 ft. wide, rigid frame steel bent Slippery Rock Bridge, at head of Lake Glacier. **$225,000**. Robert J. Schomer, 5341 Old Oxford Lane, Youngstown, consult. engr.

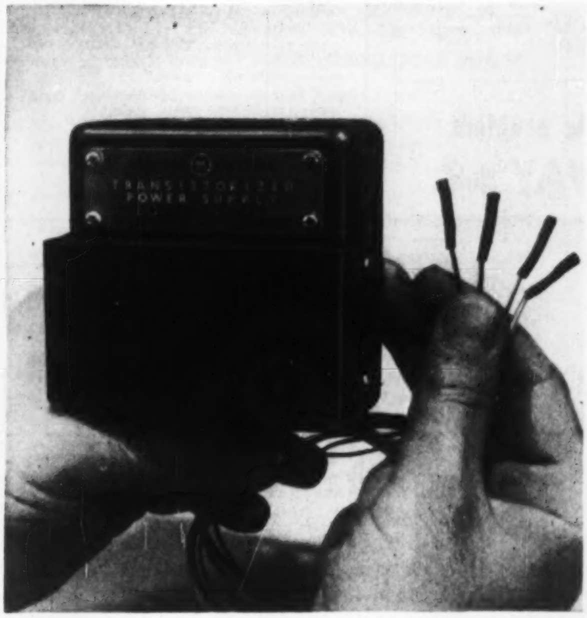
▲ **Okla., Oklahoma City**—Oklahoma Co., Court House, bone election Oct. 15, county bridges. **$6,000,000**. W. N. Dale, Court House, co-engr. CD 12/11/53.

QUEBEC—Provincial Dpt. of P. Wks., Parliament Bldg., Quebec City,
Louisville—bridge over Gravde Riviere, **$275,000**.
bridge over Petite River, **$75,000**. Olivier Desjardins, c/o owner, ch. bridge engr.

(Continued on page 126)

General Electric announces

New transistorized power supply for two-way radio



General Electric now brings you the vastly improved reliability of transistors — *without obsoleting your present equipment!*

The all-new General Electric Transistorized Power Supply—part of G.E.'s advanced Progress Line—replaces the receiver portion of the mobile power supply and eliminates the receiver vibrator.

Here's what this means: Previously you had to replace receiver vibrators several times a year. Our surveys indicate each replacement costs you from $10 to $18, depending upon service call mileage. Now you can install a power supply costing only $54.50 (when installed in new equipment at the factory, just $44.50) which has the same life expectancy as your entire mobile combination. *The new G-E Transistorized Power Supply will easily pay for itself the first year or two on vibrator replacements and service calls!*

Easy to install—Three mounting studs fasten the new unit to the front of your case or inside the older, two-unit design equipment. Electrical connections are simple: only four leads to attach.

Eliminates "Vibrator Hash" — All traces of the "vibrator hash" which interferes with clear reception are gone for good.

Easily added to any 12-volt system — The new power supply can be used with all standard makes of two-way equipment which operate from an ordinary 12-volt power source.

Saves you money when drivers forget—When drivers neglect to turn off their radios before starting a vehicle, the new transistorized power supply cannot be damaged.

Progress without obsolescence — The addition of the new unit to your present mobiles, no matter what make, improves performance, reduces maintenance cost, and adds to the life of your equipment. *There is absolutely no need to buy complete new mobile units to enjoy the advantages of transistors.*

2-WAY MOBILE RADIO

See for yourself how much you save—buy a new unit or several units and try them in your own 12-volt mobile units. Call your G-E communications consultant, listed under "Radio Communication Equipment" in the Yellow Pages. Or order direct by writing General Electric Co., Communication Products Dept., Syracuse, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

(Continued from page 124)

STREETS AND ROADS

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento,

Los Angeles Co.—grading, paving and structures on Golden State Freeway between Alameda Ave. and Burbank Blvd. **$5,580,000**. CD 10/31/55 (cost increased).

Siskiyou Co.—grading, surf. and structures in West Side Rd. between Callahan and Dredger Camp Rd. 3.5 mi. in length, FAS S-1089 (10). **$556,000**. Bids probably in September.

Solano Co.—drainage structure on Cordelia Rd. at Suisun Creek about 4 mi. southwest of Fairfield S-1103 (1). **$73,000**. Bids probably in September.

Tulare Co.—grading, surfacing about 5.9 mi. County Rd. No. 196, between Sign Rte. 198 and State Rte. 133 about 1.5 mi. west of Woodlake, FAS S-1140 (4). **$250,000**. Bids probably in October.

▲ **CONNECTICUT**—State Hy. Dpt., 165 Capitol Ave., Hartford,

Bridgeport, Trumbull, Monroe and Newtown—relocation of Route 25. **$30,000,000**. Bids in 1959-1960. Edwards, Kelcey & Beck, 3 William St., Newark, N. J., consult. engrs. CD 3/25.

▲ **D. C., Wash.**—D. C. Govt. Dpt. Hys., 499 Pa. Ave. N.W., repaving, widening Vermont Ave., Florida Ave., Sherman Ave. and New Hampshire Ave., 12 St. to Grant Circle, **$1,500,000,** repaving Park Pl. and 5 St. Irving St. to Grant Circle N.W., **$500,000;** repaving, widening Rhode Island Ave. Logan Circle to 4 St. N.E., **$1,500,000;** repaving M St. N.W. to 29-36 Sts. **$200,000;** curbing, guttering at various locations, **$915,000;** resurf. at various locations **$915,000;** c. conc. roadways various locations, **$650,000;** sidewalks and alleys at various locations, **$635,000;** paving Park Pl. to Clingle Rd. N.W., 4 crosstown streets, **$2,000,000.**

Ill, Oak Park—Village, Village Hall, curbs and gutters, **$100,000,** Glen Sunde, Village Hall, Euclid and Lake Sts., consult. engr.

Minn., Aitkin—Aitkin Co., Aitkin, county road imprvs., **$187,200**. Constr. 1958.

Minn., Ada—Norman Co., Ada, county roads imprvs. **$117,600**. Constr. 1958.

Minn., Albert Lea—Freeborn Co., Albert Lea, county road imprvs. **$152,400**. Constr. 1958.

Minn., Alexandria—Douglas Co., Alexandria, county road imprvs. **$126,000**. Constr. 1958. CD 3/14/45.

Minn., Austin—Mower Co., Austin, county road imprvs. **$146,000**. Constr. 1958.

Minn., Bagley—Clearwater Co., Bagley, county road imprvs. **$117,600**. Constr. 1958.

Minn., Baudette—Lake of Woods Co., Baudette, County road imprvs., **$115,200**. Constr. 1958.

Minn., Bemidji—Beltrami Co., Bemidji, county road imprvs., **$247,200**. Constr. 1958.

Minn., Benson—Swift Co., Benson, county road imprvs., **$112,800**. Constr. 1958.

Minn., Blue Earth—Faribault Co., Blue Earth, county road imprv., **$146,400**. Constr. 1958.

Minn., Brainerd—Crow Wing Co., Brainerd, county road imprvs., **$145,200**. Constr. 1958.

Minn., Buffalo—Wright Co., Buffalo, county road imprvs., **$181,200**. Constr. 1958.

Minn., Caledonia—Houston Co., Caledonia, county road imprvs., **$105,600**. Constr. 1958.

Minn., Carlton—Carlton Co., Carlton, county road imprvs. **$120,000**. Constr. 1958.

Minn., Chaska—Carver Co., Chaska, county rooads imprvs. **$103,200**. Constr. 1958.

Minn., Chookston—Polk Co., Chookston, county road imprvs., **$274,800**. Constr. 1958.

Minn., Detroit Lakes—Becker Co., Detroit Lakes, county road imprvs., **$187,200**. Constr. 1958.

Minn., Duluth—St. Louis Co., Court House, Duluth, county road imprvs., **$585,600**. Constr. 1958.

Minn., Faribault — Rice Co., Faribault, county road imprvs., **$108,000**. Constr. 1958.

Minn., Fairmont—Martin Co., Fairmont, county road imprvs., **$144,000**. Constr. 1958.

Minn., Fergus Falls—Otter Tail Co., Fergus Falls, county road imprvs., **$362,400**. Constr. 1958.

Minn., Gaylord—Sibley Co., Gaylord, county road imprvs., **$127,200**. Constr. 1958.

Minn., Glencoe—McLeod Co., Glencoe, county road imprvs., **$111,600**. Constr. 1958.

Minn., Glenwood — Pope Co., Glenwood, county road imprvs., **$106,800**. Constr. 1958.

Minn., Grand Rapids—Itasca Co., Grand Rapids, county road imprvs., **$273,600**. Constr. 1958.

Minn., Granite Falls—Yellow Medicine Co., Granite Falls, county road imprvs., **$127,200**. Constr. 1958.

Minn., Hallock—Kittson Co., Hallock, county road imprvs., **$122,400**. Constr. 1958.

Minn., Hastings — Dakota Co., Hastings, county road imprvs., **$126,000**. Constr. 1958.

Minn., International Falls — Koochiching Co., International Falls, county road imprvs., **$204,000**. Constr. 1958.

Minn., Jackson — Jackson Co., Jackson, county road imprvs., **$123,600**. Constr. 1958.

Minn., Le Center—Le Sueur Co., Le Center, county road imprvs., **$115,200**. Constr. 1958.

Minn., Litchfield—Meeker Co., Litchfield, county road imprvs., **$123,000**. Constr. 1958.

Minn., Little Falls—Morrison Co., Little Falls, county road imprvs., **$180,000**. Constr. 1958.

Minn., Long Prairie—Todd Co., Long Prairie, county road imprvs., **$183,600**. Constr. 1958.

Minn., Madison—Lac qui Parle Co., Madison, county road imprvs., **$127,200**. Constr. 1958.

Minn., Mankato—Blue Earth Co., Mankato, county road imprvs. **$154,800**. Constr. 1958.

Minn., Marshall—Lyon Co., Marshall, county road imprvs. **$118,800**. Constr. 1958.

Minn., Milaca—Mille Lacs Co., Milaca, county road imprvs. **$112,800**. Constr. 1958.

Minn., Minneapolis—City, L. Johnson, clk., raising, imprv. 1½ block stretch in Bloomingson Ave., from Fortieth St. to half block south of Forty-first St. **$340,000**. CD 1/25/54.

Minn., Minneapolis—Hennepin Co., Court House, Minneapolis, county road imprvs. **$264,000**. Constr. 195

Minn., Moorhead—Clay Co., Moorehead, county road imprvs. **$141,600**. Constr. 1958.

Minn., New Ulm—Brown Co., New Ulm, county road imprvs. **$102,000**. Constr. 1958.

Minn., New Ulm—Brown Co., New Ulm, county road imprvs. **$102,000**. Constr. 1958.

Minn., Olivia—Renville Co., Olivia, county road imprvs. **$192,000**. Constr. 1958.

Minn., Park Rapids—Hubbard Co., Park Rapids, county road imprvs. **$116,400**. Constr. 1958.

Minn., Pine City—Pine Co., Pine City, county road imprvs. **$180,000**. Constr. 1958.

Minn., Preston—Fillmore Co., Preston, county road imprvs. **$182,400**. Constr. 1958.

Minn., Red Wing—Goodhue Co., Red Wing, county road imprvs. **$165,600**. Constr. 1958.

Minn., Redwood Falls—Redwood Co., Redwood Falls, county road imprvs. **$156,000**. Constr. 1958.

Minn., Rochester—Olmsted Co., Rochester, county road imprvs. **$140,400**. Constr. 1958.

Minn., Roseau—Roseau Co., Roseau, county road imprvs. **$169,200**. Constr. 1958.

Minn., Slayton—Murray Co., Slayton, county road imprvs. **$118,800**. Constr. 1958.

Minn., St. Cloud—Stearns Co., St. Cloud, county road imprvs. **$297,600**. Constr. 1958.

Minn., Stillwater—Washington Co., Stillwater, county road imprvs. **$118,800**. Constr. 1958.

Minn., Two Harbors—Lake Co., Two Harbors, county road imprvs. **$128,400**. Constr. 1958.

(Continued on page 129)

DUMPCRETES help solve heavy traffic problem on DETROIT EXPRESSWAY job

The Cooke Contracting Company worked Dumpcretes during off-peak traffic hours to average 2500 feet of concrete pavement per day in widening Detroit Industrial Expressway. Highway Department check showed 500 vehicles passing the paving site *each hour*. 14 miles of 8′ to 12′ widths totalled 110,000 sq. yds.—hauled and placed by 6 Dumpcretes from central plant.

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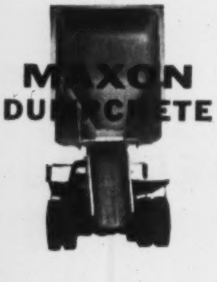

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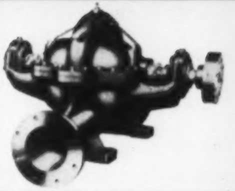

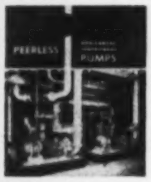

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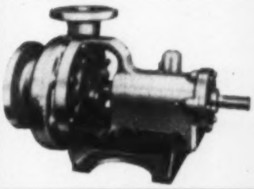
Combine quality with economy through a practical idea of component interchangeability between pump types. Oil and grease lubricated bearing housings. Packing gland or shaft seal designs. Air or water cooled back plates. Heads to 430 feet; capacities to 800 gpm. Pressures to 400 psig.



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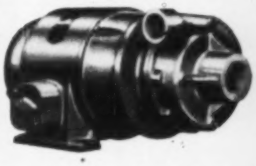
TYPE PE AND TYPE PB END-SUCTION PUMPS

America's broadest line of economical, general purpose pumps. Horsepower range from 1/4 to 150. Head range to 260 ft. Capacities up to 5500 gpm. Easy to buy, apply, install and maintain. Tens of thousands in use.



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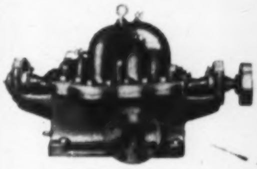
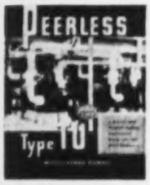
2,3,4 and 5-stage designs for supplying, circulating and boosting water and other liquids in moderate capacities against medium and high heads. Durable and dependable in operation. Heads up to 1660 feet; capacities up to 3000 gpm.





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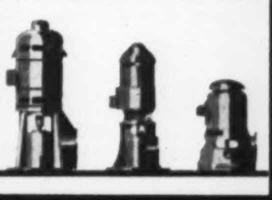
VERTICAL INDUSTRIAL SERVICE PUMPS Heavy duty, extra heavy duty and process service types for application to cooling tower service, tank pumping, etc. One of the proudest lines manufactured. Save on piping, always primed, require minimum floor space. Heads to 1000 feet; capacities: 30 to 40,000 gpm. HP range: up to 2500 h.p.



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VERTICAL Industrial Service Pumps

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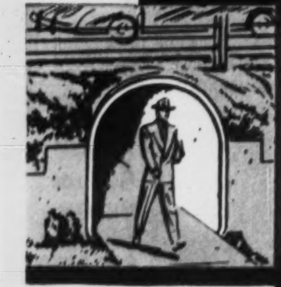

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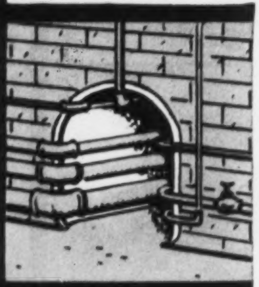
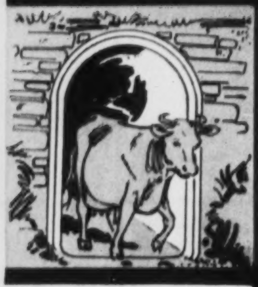
The practical way to safeguard the lives of adults and children. Especially valuable near schools and playgrounds. Also helps to maintain an even flow of street-level traffic.



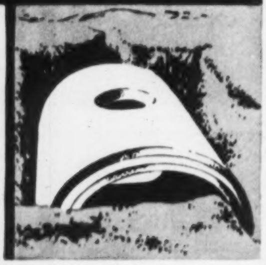
UTILITY GALLERY

Carries steam pipes, gas mains, electrical cables and telephone lines with ample room for workmen to make repairs. Flat-Base Pipe is also used for culverts and cattle passes.



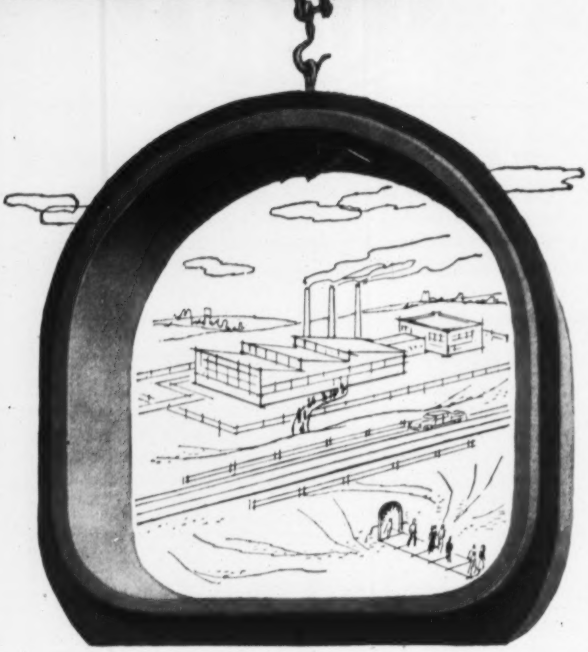
CATTLE PASS

Eliminate the hazards of road level crossings to lives and livestock with Flat-Base underpasses. Reinforced concrete Flat-Base Pipe can be jacked under railroads and highways without disturbing traffic.



UTILITY MANHOLE

Manholes for utility companies have often been built with Flat-Base Pipe in less than four hours. This eliminates needless traffic delay and reduces labor costs to a minimum.



Save as much as *30%* in the construction of pedestrian underpasses, culverts, utility galleries and manholes—with pre-cast Flat-Base Pipe. You can place and cover from 52 to 100 feet of Flat-Base Pipe in a single day. No forms to construct . . . no steel reinforcing to position . . . no concrete pouring. Can be jacked through old construction or laid in new fills. Joints are tongue and grooved and can be made watertight with rubber gaskets. Available now, in a wide variety of standard sizes.

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(Continued from page 126)

Minn., Wabasha—Wabasha Co., Wabasha, county road imprvs. **$102,000.** Constr. 1958.

Minn., Walker—Cass Co., Walker, county road imprvs. **$230,400.** Constr. 1958.

Minn., Warren—Marshall Co., Warren, county road imprvs. **$208,800.** Constr. 1958.

Minn., Willmar—Kandiyohi Co., Wilmar, county road imprvs. **$160,800.** Constr. 1958.

Minn., Windom—Cottonwood Co., Windom, county roads imprvs. **$111,600.** Constr. 1958.

Minn., Winona—Winona Co., Winona, county road imprvs. **$115,200.** Constr. 1958.

Minn., Worthington—Nobles Co., Worthington, county road imprvs. **$124,800.** Constr. 1958.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

Richmond Co.—West Shore Expressway, extending along the west shore of Staten Island, generally paralleling Arthur Kill from the proposed Richmond Parkway at Outerbridge Crossing to proposed Clove Lake Expressway at Goethals Bridge, approx. 8 mi. with right-of-way generally 400 ft. wide, FAI Project. **$30,500,000.**

O., Akron—Summit Co. Comrs., Court House, Akron, 4-lane highway to connect parking lot of Euclid Div. plant of General Motors Corp. in Hudson Twp. to Rte. 91, **$226,000;** road extending west 2½ mi. to connect to new Route 8, to be known as New Barlow Rd. **$574,000.** Leslie G. Wolfe, co. engr.

Okla., Edmonton—Oklahoma Co., Court House, 4-lane county road from Edmond east to Bradbury Corner. **$225,000.** W. N. Dale, Court House, co. engr.

Okla., Muskogee—Muskogee Co., Court House, voted bonds Aug. 6, county highways. **$650,000.** Bryce Patrick, Court House, co. engr. CD 7/26.

Okla., Oklahoma City—Oklahoma Co., Court House, asphalt paving Western Ave. from Memorial to Council Rd. **$240,000.** W. N. Dale, Court House, co. engr. CD 10/16/51.

Okla., Oklahoma City—Oklahoma Co., Court House, widening, resurf. Wilshire Rd. from Walker to Bypass, Britton; **$200,000;** resurf., widening east Tenth St. Road west of Harrah, **$275,000;** grading, draining 6.5 mi. Memorial Rd. from Luther to county line, **$225,000.** W. N. Dale, Court House, co. engr. CD 12/18/51.

EARTHWORK, WATERWAYS

▲ **California**—East Bay Municipal Utility Dist., 2130 Adeline St., Oakland, impounding reservoirs on Mokelumne River, aqueducts, terminal reservoirs, and filter plants in East Bay System, 10-year development program, **$275,000,000;** Bechtel Corp., 220 Bush St., San Francisco, Calif., consult. engrs. CD 12/7/55.

† **Maine and Canada**—U. S. Eng., 150 Causeway St., Boston 14, Mass., plans by Stone & Webster Engineering Corp., consult. engrs.-archts., 49 Federal St., Boston 7, Mass., preliminary design power plant for Passamaquoddy Tidal Power Proj., Eastport, Me.

▲ **Ontario**—Hydro-Electric Power Comn., 620 University Ave., Toronto, 60 cycle, 45,000 kw hydro generator at Abitibi Canyon generating station 250 mi. north of Sudbury, to serve communities of Porcupine, Kirkland Lake, Matheson, Elk Lake, Matachewan and others. **$3,000,000.**

AIRPORTS

▲ **Calif., Fresno**—AIR TERMINAL AGENCY BLDG.—City, 2316 Fresno St., plans by Allen Y. Lew, Fulton-Fresno Bldg., Fresno, 40,000 sq. ft. air terminal bldg. with restaurant and bar, Fresno Airport **$1,000,000;** CD 1/7. 6 story Govt. Agency Building with control tower and fire station, service bldg., etc. Fresno Air Terminal, **$1,406,000.**

Man., Fort Churchill—RUNWAY—Defense Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont., runway exten. incl. 1,500,000 yd. sand fill, 200,000 sq. yd. concrete and-or asphalt pavement and 150,000 cu. yd. grav. base, Air Force Base **$1,000,000.**

Neb., Beatrice—AIRPORT—City, City Hall, airport. **$638,000.**

Neb., Broken Bow—AIRPORT—City, City Hall, airport. **$172,034.**

Neb., Ogallala—AIRPORT—City, City Hall, airport. **$250,000.**

Neb., Fairbury—AIRPORT—City, City Hall, airport. **$309,356.**

Neb., Norfolk—AIRPORT—City, City Hall airport. **$380,000.**

Neb., Superior—AIRPORT—City, City Hall, airport. **$233,765.**

LATIN AMERICA

Mexico, El Marques—Sria, Recursos Hidraulicos, Mexico City, plans irrigation dam. **$500,000.** Luis Wintergerst Toledo, Alfonso Portal, c/o owner, engr.

▲ **Mexico, Mexico City**—CULTURAL CENTER—Unidad Industrial, Neva 13, Mexico City, plans industrial cultural center. **$5,000,000.**

Mexico, Mexico City—HOSPITAL—Mexican Red Cross, Monterrey, 103, Mexico City, plans 200 bed hospital. **$600,000.**

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PUBLIC BUILDINGS

▲ **Ariz., Phoenix**—OFFICE—State Bldg., Comn., Phoenix, two 3 story wings at State Office Bldg. with connecting tunnels **$2,000,000;** remodeling state capitol **$500,000.**

▲ **Ariz., Tempe**—DORMITORIES—State of Arizona, Campus, Phoenix, plans by Horlbeck & Hickman, archts., 32 N. Hibbert St., Unit 2, Mesa, and Weaver & Drover, archts., 128 E. Camelback Rd., Phoenix, two 3 story dormitories, **$1,000,000.** CD 8/9.

▲† **Ariz., Tucson**—CHAPEL, etc.—Veterans Admin., Munitions Bldg., Wash., D. C., alterations Bldg. No. 2, water sys., outside services, chapel and Bldg. 16. **$2,500,000.**

▲ **Ark., Conway**—CHILDREN'S COLONY—Arkansas State Children's Colony, Bd. Directors, David B. Ray supt., Union Life Bldg., Little Rock, plans by Ginocchio, Cromwell & Assocs., 416 Center St., Little Rock, school for mentally retarded children, incl. 6 cottage type dormitories, school bldg., Administration bldg. laundry, etc. on 318 site just selected east of U.S. 64-65 near Hendrix College. **$1,200,000.** CD 4/25, under Ark., Little Rock.

▲ **Calif., Los Angeles**—HOSPITAL—Veterans Admin. Munitions Bldg., Wash., D. C., addn., alterations to Bldgs. 162, 163, 164 and connecting corridors at Veterans Hospital, **$8,500,000.**

▲ **Calif., Los Gatos**—SCHOOL—Los Gatos Union High School Dist., Los Gatos, bond election Nov. 19 Saratoga High School **$3,000,000;** CD 2/23/56.

▲ **Colo., Auroro**—SCHOOL—School Dist. No. 28-J, 11th and Peoria St., Aurora, bond election Oct. 7, 2 elementary schools. **$1,112,000.**

▲ **Colo., Greeley**—SCIENCE—Colorado State College, Campus, Greeley, plans by R. F. Linstedt, 625 W. 14 Ave., Denver, science bldg. **$1,300,000.**

Colo., Security—SCHOOL—Widefield School Dist., Security, plans by Edwin A. Francis-Carlisle B. Guy, consult. engrs.-archt., Mining Exchange Bldg., Colorado Springs, 2 story junior-senior high school. **$550,000.**

Conn., Norwalk—SCHOOL—Bd. of Educ., Norwalk, plans by Gilroy & Gaydosh, 64 Wall St., Norwalk, 17-room elementary school, Chestnut Hill-Cranberry Sector, **$700,000.** CD 8/12.

Conn., Rocky Hill—SCHOOL ADDN.—Town, Town Hall, plans by Nichols & Buterfield, 998 Farmington Ave., West Hartford, high school addn. **$500,000.** Marchant & Minges, 1007 Farmington Ave., West Hartford, consult. engrs. CD 8/2.

Conn., West Haven—JAIL—Comrs., New Haven Co., 121 Elm St., New Haven, plans by Henry A. Pfisterer, consult. engr.-archt., 111 Whitney Ave., New Haven, renovating former county childrens bldg. and constr. one new building for use as New Haven County Jail. **$500,000.**

▲ **Del., Claymont**—SCHOOLS—Claymont Special School Dist., Claymont, elementary school **$1,320,000;** Barley Road Elementary School **$500,000;** New Maple Lane Elementary School **$1,370,000;** Central School addns alterations. **$1,080,000.**

Del., Dover—SCHOOL—Dover Special School Dist., Dover, B. T. Washington School. **$627,000.**

▲ **Del., Marshalltown**—SCHOOL—Marshalltown School Dist. No. 77, Marshalltown, Junior High School. **$1,100,000.**

▲ **Del., Smyrna**—HOME ADDN.—Delaware State Welfare Home, Smyrna, plans by G. Morris Whiteside Jr., 909 Tatnall St., Wilmington, home addn. **$1,500,000.** Louis H. Doane, Penna. R. R. Bldg., Wilmington, engr. CD 8/27/54.

▲ **Del., Wilmington**—SCHOOL—Henry C. Conrad School Dist., Woodcrest, Wilmington, plans by Pope & Kruse, 911 Washington St., high school **$4,313,000.**

Del., Wilmington—SCHOOL—Alexis I. duPont Special School Dist., Kennett Park, Wilmington, elementary school. **$900,000.**

▲ **Del., Wilmington**—SCHOOLS—Alfred I. du Pont School Dist., 3606 Concord Pike, Wilmington, Junior High School, **$2,419,700;** elementary school. **$1,200,000.**

▲ **Del., Wilmington**—SCHOOLS—Mount Pleasant Special School Dist., Duncan Rd. and Phila. Pike, Wilmington, Senior High School addns., alterations, **$2,400,000;** Carrcroft River Road and Silverside Elementary Schools addns., alterations, **$584,000.**

Del., Wilmington—SCHOOL ADDNS.—Oak Grove School Dist., Elsmere, Wilmington, plans by W. Ellis Preston, 903 Jefferson St., Wilmington, Spruce Avenue School addns. **$550,000.**

Fla., Bradenton—COUNTY JAIL—Manatee Co. Comrs. Court House, plans by Sidney R. Wilkinson, Bradenton, county jail and county court house addn. **$550,000.**

Fla., Fort Lauderdale—HOUSING—Fort Lauderdale Housing Auth., c/o Robert G. Jahelka, archt., 701 E. Broward Blvd., 84-unit public housing project, site imprvs., paving, N.W. 8 and 9 Sts., between N.W. 13 and 14 Way, **$500,000.** CD 9/19/56.

▲ **Ga., Atlanta**—NUCLEAR REACTOR—Georgia Institute of Technology, 225 North Ave. N.W., nuclear reactor **$3,000,000.** General Nuclear Eng. Corp., Dunedin, Fla., engrs.

▲ **Ind., Indianapolis**—HOSPITAL—State Dpt. P. Wks & Supply, 404 State House, 1 and 2 story, 88 bed intensive treatment bldg. at Central State Hospital, east of wooded area on grounds. **$1,000,000.** Bids in September.

Iowa, Manson—SCHOOL, etc.—Community School Dist., Bd. Educ., Bernice B. Harbaugh, secy., plans by Smith, Voorhees, Jensen, Silletto & Assocs., 206 Davidson Bldg., Des Moines, elementary school and bus garage, **$650,000.**

Iowa, Ottumwa—SCHOOL—Bd. Educ. plans by Clifford Prall, 621 Insurance Exch. Bldg., Des Moines, 2 schools, **$750,000.** Ready for bids In October.

▲ **Kan., Lawrence**—HOUSING—University of Kansas, Lawrence, ten 2 story bldgs., for housing married students, **$1,065,000.**

Ky., Lebanon—HOUSING—Lebanon Public Housing Comn., Lebanon, plans by Foster B. Phillips, 109 Hudson St., Stanford, public housing (rental), Over **$500,000.** Pending approval of Federal government.

Md., Baltimore—HEALTH—City, Bureau Bldg. Constr., 410 Municipal Bldg., Zone 2, plans by David Harrison, 2199 St. Paul St., Zone 18, Health Dpt. Bldg., North Ave. and Cumberland St. **$800,000.**

Md., Laurel—SCHOOL—Prince George's Co., Bd. Educ., Marlboro, plans by Paul Kea, 5109 Baltimore Ave., Hyattsville, Md., junior High School, **$850,000.** Bids October or November.

† **Mich., Dearborn**—CLINICAL LABORATORY—Veterans Admin., Munitions Bldg., Wash., D. C., clinical laboratory at Veterans Admin. Hospital, **$500,000.**

Minn., Duluth—SCHOOL—Bd. Educ., St. Louis Co., W. W. Salmi, supt., plans by Damberg & Damberg, Virginia, Minn., Junior Senior High School, for Alborn-Brookston area. **$800,000.** CD 1/9.

Minn., Triumph—SCHOOL—Bd. Educ., Independent School, Dist. No. 118, Martin Co., L. May clk., plans by Haarstick, Lundgren & Assocs., N. 212 1st. National Bank Bldg., St. Paul, Minn., Triumph, Monterey School. **$500,000.**

N. J., Paulsboro—SCHOOL—Bd. Educ., Paulsboro, addn., **$344,000;** Loudenslager Elementary School addn., **$344,000.** Action later in 1957.

▲† **N. J., Princeton**—LABORATORIES AND OFFICE—Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C., plans by Walter Kidde Constructors, Inc., engr.-archt., 140 Cedar St., New York, N. Y. architectural design and engineering of laboratories and office at Princeton's University's thermonuclear Model C Stellarartor research project, will occupy approximately 30 acres of Forrestal Research Center, Plainsboro Twp., near here, code-named Project Matterhorn, part of Project Sherwood.

▲ **N. J., Toms River**—SCHOOL—Bd. Educ., Toms River, plans by Micklewright & Mountford, E. Stuyvesant Ave. and Prospect St., Trenton, high school, **$2,000,000.** Bids Spring 1958. CD 1/30.

N. Y., New York—COURT—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Maurice R. Sarlo & Assocs., 607 Fifth Ave., Zone 17, addnl. stories and alterations to Childrens Court Bldg., 137 E. 22 St. Proj. PW-165, **$900,000.** CD 5/29.

N. Y., New York—FIRE HOUSE—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Raymond Irrera & Assocs., 42-15 Crescent St., Long Island City, Proj. F-113, fire house for Engine Co. 22, Ladder Company 13 and Battalion Chief, for Fire Department, **$560,000.**

† **N. Y., Northport**—CANTEEN—Veterans Admin., Munitions Bldg., Wash., D. C., canteen, Veterans Administration Hospital, **$600,000.**

O., Greenwich—SCHOOL—Iroquois Local Bd. of Educ. Greenwich, $890,000 bond election Nov. 5, high school and existing schools repairs and imprvs. **$890,000.** Thurman Peabody, Norwalk, archt. CD 3/29.

▲ **Ore., Salem**—State Bd. Control, Capitol, Salem, labor and industries bldg. **$3,000,000.**

▲ **Pa., Levittown**—SCHOOL—Middletown Twp. School Dist., Langhorne, plans by Haag & D'Entremont, 400 Cedar St., Jenkintown, elementary school, Middletown Twp., **$850,000.** CD 7/11; junior high school **$2,900,000.** Bids in October.

▲† **S. D., Fort Meade**—HOSPITAL—Veterans Admin., Munitions Bldg., Wash., D. C., modernization, Phase 2. **$2,700,000.**

▲ **Tex., Arlington**—HOSPITAL—Bd. for Texas State Hospitals and Special Schools, 4405 Lamar Blvd., Austin, mental hospital **$1,269,490.**

▲ **Tex., Austin**—LABORATORY—State Dpt. Pub. Health, Dr. Henry A. Holle, Dir., c/o Administration Bldg., Austin, completing new Physical State Health Laboratory, **$3,750,000.** Constr. 1958.

Tex., Beeville—HOUSING—Beeville Housing Authority, c/o E. J. Spielhagen, Beeville, plans by Victor Brock & Assocs., 207 Jones Bldg., Corpus Christi, 90 unit low-cost housing (45 separate bldgs of masonry type) **$750,000.** H. P. McElhaney, 340 Wilson Bldg., Corpus Christie, and Vernor & Callins, 304 Green Ave., Taft, consult. engrs. CD 4/17.

Tex., Del Rio—HOSPITAL—Val Verde Co., Del Rio, plans by Phelps & DeWees & Simmons, 342 W. Woodlawn St., San Antonio, hospital, **$400,000-$630,000.** CD 1/11.

▲ **Tex., Seagoville**—SCHOOL—Seagoville Independent School Dist., Seagoville, plans by Stanley Brown, 4012 Cedar Springs Rd., Dallas, elementary school **$500,000;** school unit **$500,000;** CD 8/6.

▲ **Vt., Brattleboro**—SCHOOL—Town, Town Hall, plans by Nichols & Butterfield, 998 Farmington Ave., West Hartford, Conn., Junior High School Addn. to High School **$1,150,000.** Marchant & Minges, 1007 Farmington Ave., West Hartford, Conn., consult. engrs.

Wash., Opportunity—SCHOOL—Central Valley School Dist. 356, N607 Pines Rd., plans by V. L. Wulff, W1526 Riverside Ave., Spokane, 52,000 sq. ft. Junior High School, S. Bowdish St. **$700,000.** Bids to be called this fall.

Wis., Burlington—HOSPITAL—Burlington Memorial Hospital plans by Brust & Brust, 135 W. Wells St., Milwaukee, hospital addn. **$952,000.** Complete plans about Dec. 1.

Wis., Mendota—NURSERY—State Dpt. P. Welfare, Madison, plans by R. C. Kirckhoff, 1 and 2 story, four 50x200 ft. nursery wings. **$500,000.**

▲ **Wis., Waupun**—PRISON—State Dpt., P. Welfare, Madison, plans by R. C. Kirchhoff, state archt., Madison, prison bldg. **$2,000,000.** Funds authorized for drafting plans for 1st section. R. D. Culbertson, Madison, state engr.

▲ **Ontario**—GENERATING STATIONS—Hydro-Electric Power Comn. of Ontario, 620 University Ave., Toronto, two 1,800,000 kw. steam-powered generating stations in western suburban Toronto, **$500,000,000.**

▲ **Que., Montreal**—HOUSING—Central Mortgage & Housing Corp., 56 Lyon St., Ottawa, Ont., 441-unit low rental housing, **$3,155,400.**

Sask., Prince Albert—HOUSING—Central Mortgage & Housing Corp., 56 Lyon St., Ottawa, Ont., low-rental housing, **$500,000.**

COMMERCIAL BUILDINGS

Ark., Little Rock—WING—Arkansas Baptist Hospital, John A. Gilbreath, Administrator, 1700 W. 13 St., plans by Erhart, Eichenbaum, Rauch & Glass, 201 Chester St., Little Rock, 2 story surgical wing, incl. 14 major operating rooms, etc., **$750,000-$850,000.**

Ark., Searcy—APARTMENTS—Harding College, Searcy, plans by Bruce Anderson, Wallace Bldg., Little Rock, three 2 story 45,000 sq. ft. each apartment bldgs. **$500,000.** CD 7/31.

▲ **Calif., Stockton**—HOSPITAL—Owner c/o Mayo, DeWolf & Assoc., Ala., archts., 307 Exchange Bldg., 142 N. California St., Stockton, precast concrete, steel frame hospital, **$2,000,000.**

Conn., Fairfield—MOTEL—Harold T. Winer, 222 Jackman Ave., Fairfield, 56-unit motel, Jefferson St. **$750,000.**

▲ **Conn., Woodbridge**—SYNAGOGUE—Congregation B'Nai Jacob, 347 Geogre St., New Haven, plans by Fritz Nathan, 200 Central Park South, New York, N. Y., synagogue, religious school and assembly hall, Rimmon Rd., **$1,200,000.** CD 8/16.

D. C., Wash.—HOSPITAL EXPANSION, etc.—Children's Hospital, 2125 13 St. N.W., Wash., D. C., plans by Faulkner, Kingsbury & Stenhouse, Ring Bldg., Wash., D. C., hospital expansion and remodeling, **$800,000.**

▲ **Fla., Cocoa Beach**—HOTEL—Owner, c/o Charles F. McKirahan, archt., 2400 E. Oakland Blvd., Fort Lauderdale, 155-room, 7 story, concrete block hotel, Rte. A1A, **$1,000,000.**

Fla., Orlando—BANK—First National Bank of Orlando, 190 S. Orange Ave., plans by Kemp, Bunch & Jackson, 33 S. Hogan St., Jacksonville, bank, southwest corner of Orange Ave. and Church St. **$500,000.** CD 9/28/56.

Ga., Statesboro—MOTEL ADDN.—Crossroads Motel, B. W. Knight, owner, Statesboro, motel addn. **$500,000.**

Ill., Broadview—MOTEL—Owner c/o S. Corman Blumenthal, archt., 412 N. Orleans St., Chicago, 72-units motel, paving, Roosevelt Road, **$500,000.**

▲ **Ill., Chicago**—FACULTY, etc.—McCormick Theological Seminary, 2330 N. Halsted St., faculty bldg., dormitory, library and resident bldgs., 2330 N. Halsted St. **$5,000,000.**

▲ **Ill., River Forest**—HALL—Concordia Teachers College, 7400 Augusta St., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Pfotnhauer Memorial Hall, auditorium and chapel, **$1,000,000.**

Ill., Skokie—TEMPLE—Niles Twp. Jewish Congregation, Dempster St., plans by Sobel & Stein, 450 E. Ohio St., Chicago, 2 story, brick, structural steel and concrete temple, Dempster St. and Kolmar Ave. **$500,000.**

Ind., Lafayette—OFFICE—Lafayette Life Insurance Co., 300 Main St., plans by Walter Scholar & Assocs., 1114 State St., 1 story partial bsmnt., rein.-conc., structural steel, masonry office bldg. **$750,000.** J. M. Rotz Engr. Co., 1005 Merchant Bank Bldg., Indianapolis, heating and ventilating consult. engr.

▲ **Mass., Boston**—DORMITORY, etc.—New England Conservatory of Music, 290 Huntington Ave., plans by Kilham Hopkins Greeley & Brodie, 9 Arlington St., dormitory, infirmary and dining hall, **$1,115,000.** CD 8/26.

▲ **Mass., Framingham**—SCHOOL—Roman Catholic Diocese of Boston, Chancery Office, 1 Lake St., Brighton, Marian High School. **$2,000,000.** Constr. 1958.

▲ **Mass., Medford**—SHOPPING CENTER—Owner, c/o Harold A. Rudnick, 65 Commonwealth Ave., Boston, plans by Sumner Schein, 271 Huntington Ave., Boston, shopping center, Wellington Circle. **$5,000,000.**

▲ **Mass., Worcester**—DORMITORIES, etc.—Clark University, 950 Main St., plans by Hoyle, Doran & Berry, 248 Boylston St., Boston, men's dormitory **$700,000;** Women's dormitory **$550,000;** student center **$250,000.** CD 9/26/56.

N. J., Atlantic City—MOTEL, etc.—Illinois Motel Corp., Abraham Beiderman, pres., c/o Canada Dry

(Continued on page 132)

DANGER BELOW!

Garbage Grinders Create New Sewage Conditions Only CLAY PIPE Can Resist

With 1 out of 8 families* now using garbage grinders, and the number increasing steadily, more and more communities are realizing the necessity of Clay Pipe sewage lines.

HERE'S WHY:

INCREASED SULPHIDE ACTIVITY

Many experts claim ground garbage causes an increase in sulphide activity, harmful to most pipe. *Clay Pipe is impervious to sulphides.*

RISING TEMPERATURES

Decomposition of ground garbage particles causes an increase in temperature which has a softening effect on certain types of pipe. *Clay pipe is unaffected by heat.*

ACCUMULATED SOLIDS

Ground garbage particles tend to pocket in sewer lines, creating acids and gases which corrode most types of pipe. *Clay Pipe is unharmed by corrosives.*

If your community is joining the swing to modern, convenient garbage grinders, be sure to specify and install Clay Pipe sewers! It's the one type of pipe that is unaffected by heat, acids or gases. It's your insurance against future sewer line failures. *It never wears out.*

*American City Magazine Survey

THE PUBLIC
KNOWS
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C-607-2

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

NORTHERN ILLINOIS TOLL HIGHWAY

ADVERTISEMENT FOR BIDS

Bids to be opened September 26, 1957

CONTRACT TP-1, CONTRACT TP-2, CONTRACT TP-12, CONTRACT TB-1

Sealed Proposals for the Contracts listed and described below will be received by The Illinois State Toll Highway Commission at its offices, 20 North Wacker Drive, Chicago 6, Illinois, until 11:00 o'clock A.M., Central Daylight Savings Time on Thursday, September 26, 1957, and then immediately taken to Suite 631, 20 North Wacker Drive, Chicago, Illinois, publicly opened and read aloud.

CONTRACT TP-1

The work to be done under this Contract shall be commenced on October 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before July 15, 1958, and consist of:

The complete construction of eleven (11) Toll Plazas, including construction of access roads, toll islands, reinforced concrete pavement, control buildings, parking areas and other appurtenant construction. Sites will be rough-graded by other contractors. Numbers and locations of Toll Plazas are as follows:

Toll Plaza	Approximate Location	Township	County
NP-1	**On Toll Hwy., 1,000 ft. N. of McCurry Road.**	**Roscoe**	**Winnebago**
NP-2	**On Ramp "A" of Interchange No. 47, 700 ft. N. U. S. Route 20.**	**Rockford**	**Winnebago**
NP-3	**On Interchange Connector 2,000 ft. N. of Ill. Rte. 5.**	**Rockford**	**Winnebago**
NP-4	**On Ramp "AB" of Interchange No. 48, 700 ft. East of Genoa Road.**	**Spring**	**Boone**
NP-5	**On Ramp "A" of Interchange No. 49, 700 ft. South of U. S. Route 20.**	**Dundee**	**Kane**
NP-6	**On Toll Hwy. 4,400 ft. W. of Ill. Route 31.**	**Dundee**	**Kane**
NP-7	**On Ramps in Interchange No. 51, Toll Hwy. and Ill. Rte. 31.**	**Dundee**	**Kane**
NP-8	**On Toll Hwy., 600 ft. W. of Rohlwing Road.**	**Schaumberg**	**Cook**
NP-9	**On Toll Hwy., between Mannheim Rd. & Higgins Rd.**	**Maine**	**Cook**
TP-8	**On Toll Hwy., 1,400 S. of Deerfield Road.**	**West Deerfield**	**Lake**
TP-9	**On Toll Hwy., 1,200 ft. N. W. of Wadsworth Rd.**	**Newport**	**Lake**

CONTRACT TP-2

The work to be done under this Contract shall be commenced on October 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this Contract shall be completed on or before December 15, 1958 and consist of:

The complete construction of eleven (11) Toll Plazas, including construction of access roads, toll islands, reinforced concrete pavement, control buildings, parking areas and other appurtenant construction. Sites will be rough-graded by other contractors. Numbers and location of toll plazas are as follows:

Toll Plaza	Approximate Location	Township	County
TP-1	**On Toll Hwy., 1,500 ft. N. of 167th Street.**	**Bremen**	**Cook**
TP-2	**On Toll Hwy., at 83rd Street.**	**Lyons**	**Cook**
TP-3	**On Ramp "AB" of Interchange No. 91, 1,500 ft. N. W. of U. S. Route 66.**	**Lyons**	**Cook**
TP-4	**On Toll Hwy, 2,100 ft. N. of Cermak Road.**	**Proviso**	**Cook**
TP-5	**On Toll Hwy., 1,800 ft. N. E. of Irving Park Blvd.**	**Leyden**	**Cook**
TP-6	**On Ramp "E" on Interchange Entrance to O'Hare Airport.**	**Leyden**	**Cook**
TP-7	**On Toll Hwy., 2,100 ft. N. of Devon Road.**	**Maine**	**Cook**
NP-10	**On Toll Hwy., 900 ft. E. of Des Plaines River Rd.**	**Leyden**	**Cook**
EP-1	**On Toll Hwy., 2,100 ft. E. of Ill. Rte. 25.**	**Aurora**	**Du Page**
EP-2	**On Ramp "E" of Interchange Lisle No. 36, 500 change No. 36 500 ft. W. of Naperville-Wheaton**	**Lisle**	**Du Page**
EP-3	**On Toll Hwy., 800 ft. N. E. of Cermak Road.**	**York**	**Du Page**

CONTRACT TP-12

The work to be done under this Contract covers a combination of Contracts TP-1 and TP-2. Construction of Toll Plazas NP-1 through NP-9, TP-8 and TP-9 shall be commenced on October 1, 1957, or such earlier date as may be mutually agreed upon between the Commission and The Contractor, and shall be completed on or before July 15, 1958. Construction o Toll Plazas TP-1 through TP-7, NP-10, EP-1, EP-2 and EP-3 shall be commenced on October 1, 1957, or such earlier date as may be mutually agreed upon between the Commission and The Contractor, and shall be completed on or before December 15, 1958.

CONTRACT TB-1

The work to be done under this contract consists of furnishing, fabricating, delivering and installing eighty-nine (89) toll booths completed as shown and called for on the drawings and specifications at locations indicated.

The work is divided into two (2) stages as follows:

Stage 1—Toll Plaza Construction requires that forty-one (41) booths be installed starting April 1, 1958, with completion no later than July 15, 1958.

Stage 2—Toll Plaza Construction requires that forty-eight (48) booths be installed starting July 17, 1958 with completion no later than December 15' 1958.

The booths are to be fabricated of steel plate and include stainless steel interior lining, built-in stainless steel counter with cash drawers and other built-in items.

Booths to be fabricated complete including glazing, electrical wiring, heating air valve, and temperature control so that the booth need only be set into place and connection made to external electrical and heating services to put the booth into operation.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

20 N. Wacker Drive, Chicago **By Austin L. Wyman, Chairman**

Write, wire or phone for detailed information and necessary forms, Chief Engineer, Room 1654, 20 N. Wacker Dr., Chicago 6, Ill. Telephone FRanklin 2-7020.

(Continued from page 130)

Bottling Co., 211 Madison Ave., 60 suite motel, swimming pool and parking area, 137-145 S. Illinois Ave. **$500,000.**

N. J., **Mountain View**—CHURCH—Archdiocese of Paterson, Church of Holy Cross, Mountain View, plans by Alfonso Alvarez, Lorraine Ave., Upper Montclair, mission church, Oakwood Dr., Packanack Lake. **$400,000.**

N. Y., **Brooklyn**—APARTMENT—H.B.R. Holding Corp., 507 Fifth Ave., New York, Zone 17, plans by Samuel L. Malkind, 559 W. 42 St., New York, Zone 36, 6 story 79-family apartment, 29-43 E. 94 St. **$600,000.**

▲ N. Y., **New York**—APARTMENT BLDG.—Joseph I. Lubin, 521 Fifth Ave., New York 17, N. Y., plans by Greenburg & Ames, 303 Fourth Ave., N. Y., Zone 10, 30 story, apartment bldg., 410-34 E. 49th St. **$2,000,000.**

N. Y., **New York**—OFFICE—Reiss Mfg. Co., 111 Fourth Ave., Zone 3, plans by Kenneth H. Ripnen Co., 440 Fourth Ave., Zone 16, office alterations, 153-55 E. 44 St. **$450,000.**

N. Y., **New York**—APARTMENT—Sherman Terrace Cooperative, Inc., c/o Leo Stillman, archt., 332 E. 149 St., New York, Zone 51, 6 story co-operative apartment bldg. northeast corner of Sherman Ave. and E. 164 St. **$500,000.** To go ahead in Fall.

N. Y., **New York**—APARTMENT—Syndicate, c/o H. I. Feldman, archt., 415 Lexington Ave., Zone 17, 12 story apartment, 15 W. 12 St. **$600,000.**

N. Y., **New York**—APARTMENT ALTERATIONS—210 Central Park South Corp., 12 E. 48 St., New York, Zone 17, plans by Philip Birnbaum, 12 E. 48 St., New York, Zone 17, apartment alterations, 210 Central Park South. **$400,000.**

▲ N. Y., **New York**—APARTMENT BLDG.—Turtle Bay House, Inc., 274 Madison Ave., New York, Zone 16, plans by H. I. Feldman, 415 Lexington Ave., New York, Zone 17, 20 story, apartment house, 245-59 East 48th St., N.W. corner of Second Ave. **$1,300,000.**

▲ O., **Bay Village**—HOMES—Price-Kauker Constr. Co., 11820 Edgewater Dr., Lakewood, Zone 7, 80 homes in Huntington Valley Subdivision. **$2,400,000.**

▲ O., **Toledo**—SHOPPING CENTER—Don M. Casto & Assocs., 42 S. Fourth St., Columbus, 60-store shopping center, 40-acre site, at Byrne and Glendale Rds. **$10,000,000.** Constr. to start in spring 1958. CD 7/24.

▲ O., **Toledo**—SCHOOL—Catholic Diocese of Toledo, 2544 Parkwood St., high school in central area, **$1,500,000.**

Okla., **Oklahoma City**—Bank—Federal Reserve Bank, 3 and Harvey Sts., bank addn., 3 and Harvey Sts. **$500,000**

Okla., **Tulsa**—STORE—Pearl Alexander, 3346 E. 29 St., plans by Murray, Jones & Murray, 4238 Peoria St., 3 story store, 3 and Main Sts. **$450,000.** J. C. Penney Co., lessee.

Pa., **Phila.**—SHOPPING CENTER—Food Fair Stores, Inc., 401 W. Erie Ave., Phila., Pa., plans by Louis Kasoff, c/o owner, ch. archt., shopping center, super market and 6 stores, Oxford Ave. and Lewick St. **$500,000.**

Pa., **Phila.**—SUPER MARKET, etc.—Food Fair Stores, Inc., 401 E. Erie Ave., plans by Louis Kassoff, c/o owner, supermarket and stores, Baltimore Ave. and Cobbs Creek Parkway. **$750,000.**

Pa., **Phila.**—RESEARCH—Wistar Institute of Anatomy & Biology, 36 St. and Woodland Ave., Phila., plans by W. Stewart Thompson and Phelps Barnum, 250 Park Ave., New York., N. Y., research bldg. modernizing and remodeling. **$500,000.**

▲ Pa., **Phila.** — RESEARCH WING — Women's Medical College of Pennsylvania, Henry Ave. and Abbottsford Rd., Phila., plans by Schmidt Garden & Erikson, 104 S. Michigan Ave., Chicago, Ill., research bldg. wing. **$2,000,000.** Bids in October.

▲ Pa., **Plymouth Meeting**—SHOPPING CENTER—Plymouth Shopping Center, Inc., c/o Delaplane McDaniel, Penn Center Plaza, Phila., site studies by E. Nelson Edwards, 1302 Otis St., Phila., shopping center, Route 422, Plymouth Twp. **$1,000,000.**

▲ Tex., **Baytown**—DWELLINGS—Elmer Gray & Son, and Truman Cox, Baytown, 18 dwellings **$363,500;** 22 dwellings **$371,195;** 30 dwellings **$355,500;** 27 dwellings **$349,650;** 24 dwellings **$375,000** in N. E. Baytown.

Tex., **Dallas**—DWELLINGS—Dick N. Richards Constr. Co., 11232 Cindrella St., 10 dwellings, Hockaday Square subdivision. **$510,000.**

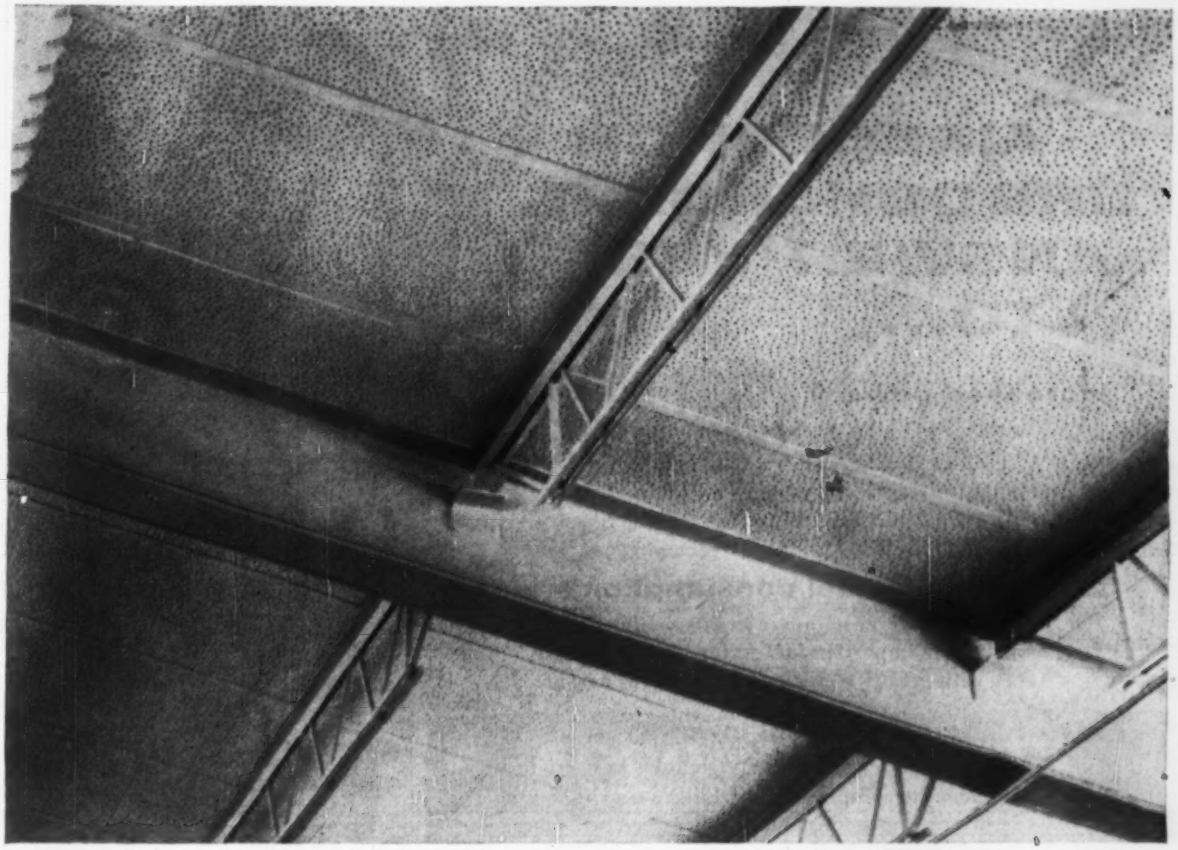
▲ Tex., **Farmers Branch**—DWELLINGS—Laughlin & Silver, 1502 Centerville Rd., Dallas, 22 dwellings **$366,000;** 28 dwellings **$377,700;** 25 dwellings **$371,125;** 18 dwellings **$347,500;** in "Valwood Park"

▲ Tex., **Farmers Branch**—DWELLINGS—H. D. Lewis & Angus Wynne, Jr., 401 Wynnewood Village, 21 dwellings **$346,500;** 28 dwellings **$379,000;** 25 dwellings **$351,400** 29 dwellings **$392,225** in "Valwood Park"

▲ Tex., **Houston**—DWELLINGS—S. W. Bennett Constr. Co., c/o S. W. Bennett, 113 N. Alder St., 9 all masonry dwellings **$362,500;** 14 all masonry dwellings **$350,000;** 16 all masonry dwellings, **$374,350.** "Marilyn Estates".

▲ Tex., **Houston**—DWELLINGS—Krist Hubert & Assocs., 5107 Jackwood St., 23 dwellings **$364,225;** 20 dwellings **$391,700;** 17 dwellings, **$350,000;** 19 dwellings **$369,500.** in Maplewood Addn.

(Continued on page 135)



Exclusive Full Random pattern of Armstrong Acoustical Formboard brings new ceiling beauty to poured-in-place roof deck construction.

New Armstrong Acoustical Formboard offers attractive full random ceiling design

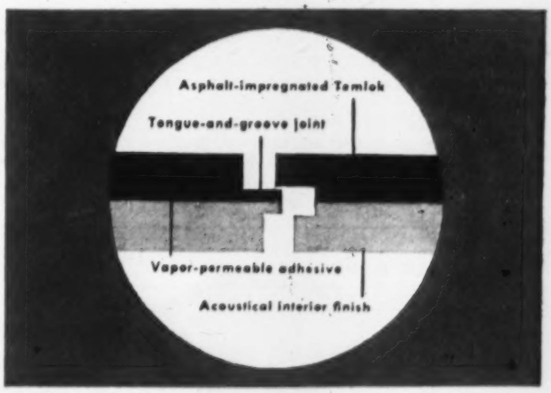
Now you can bring new ceiling interest to your poured-in-place roof deck jobs by specifying Armstrong Acoustical Formboard.

The interior surface of this new fiberboard material is perforated in an attractive Full Random design that's exclusive in the formboard field. What's more, it enables you to achieve continuity of ceiling design throughout an entire structure, because the identical design is available on several Armstrong acoustical ceiling tiles. For example, you can specify Armstrong Acoustical Formboard in building areas where the roof framing is to remain exposed. In other areas of the building, a suspended ceiling of Armstrong Cushiontone® or Minatone® can be specified.

T&G joints on Armstrong Acoustical Formboard are entirely self-supporting and need no reinforcement from main purlins, supplemental splines, or cross tees. This permits greater economies by eliminating both initial costs and installation costs of the extra reinforcing steel.

Finished with two coats of factory-applied white paint, Acoustical Formboard has a light reflectance of 78%, an NRC range of .50–.60, and a Certified "C" of 0.36 btu. at 75° F. mean temperature. It is available in both 24" × 48" × 1" and 32" × 24" × 1" sizes.

For a free booklet that tells you all about Armstrong Acoustical Formboard, write to Armstrong Cork Company, 3809 Wallace Street, Lancaster, Pennsylvania.



High strength of Armstrong Acoustical Formboard results from two-layer lamination. Vapor-permeable fiberboard and laminating adhesive allow free escape of moisture for slab curing. Special adhesive retains its strength when wet.

Armstrong FORMBOARDS

Acoustical Formboard **Insulation Formboard (T&G or Cut-to-Length)**

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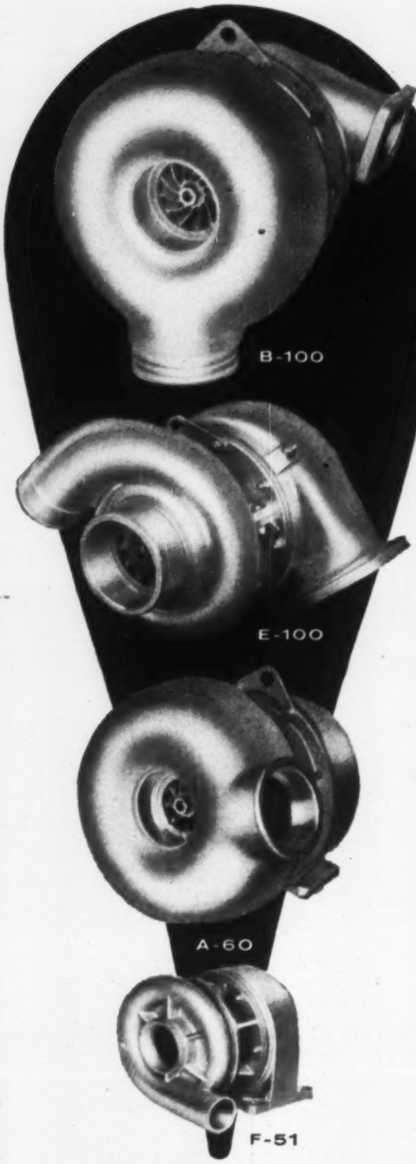


increased power?

Your engine's output can be raised up to 100%, depending on its design and application. Incorporating the most efficient turbine wheels in the industry, AiResearch turbochargers can give sea-level performance up to 12,000 feet.

lower specific fuel consumption?

The turbocharger improves engine combustion, resulting in important fuel saving per horsepower even with greatly increased engine power output.

lower engine thermal loading?

Efficient compressor wheel design holds heat-producing turbulence to a minimum, providing a smooth flow of compressed air to the engine. AiResearch turbochargers are also air-cooled, eliminating the need for complicated plumbing.

less noise and smoke?

Engine noise level is greatly decreased. Smoking is often completely eliminated.

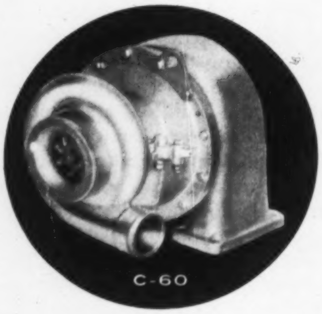
reliability and durability?

Excellent reports on more than 13,000 AiResearch units at work in the field emphasize these qualities. AiResearch turbochargers require no attention between normal engine overhaul periods.

Your inquiries are invited.

BASIC SPECIFICATIONS FOR AIRESEARCH TURBOCHARGERS

MODEL	F-51	C-60	A-60	E-100	B-100
Output — lb/min. (Standard Conditions)	29-51	30-60	38-60	50-100	60-100
Diameter — in. nom.	10.0	11.5	15.25	15.1	15.4
Length — in.	10.5	12.9	16.75	14.7	17.1
Weight — lb.	40.0	95.0	125.0	112.0	135.0



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AiResearch Industrial Division

9225 South Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND SPECIALIZED INDUSTRIAL PRODUCTS

(Continued from page 132)

Tex., Houston—STORE—Minimax Stores, 1201 Sellers St., store. **$750,000.** Constr. 1958.

▲ **Tex., Houston**—DWELLINGS—Pinehurst Corp., c/o 6332 Long Dr., 29 dwellings **$360,000**; 34 dwellings **$366,150**; 27 dwellings **$346,000**; 30 dwellings **$359,750**, in new subdivision, South Houston.

▲ **Tex., Houston**—DWELLINGS—T. A. Robinson, Jr., Geo. Meyer, c/o Meyerland Co., 4703 Jason St., 12 dwellings **$360,000**; 8 dwellings **$360,000**; 14 dwellings **$381,500**, in Section 5, Meyerland subdivision.

▲ **Tex., Houston**—DEWLLINGS—Paul H. Wolf Constr. Co., 2418 W. Alabama St., 14 dwellings, **$350,000**; 23 dwellings **$345,000**; in SA section of city; 41 dwellings, **$371,150**; 45 dwellings, **$360,000**; 35 dwellings, **$357,000**; 38 dwellings, **$364,175**; 34 dwellings, **$350,000**; 40 low-priced dwellings, **$355,500**; in "Carversrest Addn." of Westheimer and Piney Point Rds.

▲ **Ont., Toronto**—OFFICE—New York Life Insurance Co., 320 Bay St., plans by Gordon S. Adamson & Assocs., 52 St. Clair Ave. E., 5 story 98x114 ft., aluminum, glass, masonry office with 3 underground parking levels, University Ave. and Dundas St. W. **$1,400,000.** Wallace, Carruthers & Assocs. Ltd., 92 Yorkville Ave., consult. engrs.

Vt., South Burlington—OFFICE—Burlington Mutual Fire Insurance Co., 74 Main St., Burlington, home office bldg. **$500,000. Constr. 1958.**

▲ **Wash., Tacoma**—HOSPITAL—Tacoma General Hospital, 315 S. K St., hospital addn. **$1,500,000.** Work may begin next year.

▲ **Wis., Appleton**—MUSIC-DRAMA CENTER—Lawrence College, Appleton, plans by F. C. Shattuck Assocs., Inc., 174 E. North Water St., Neenah, music-drama center, **$1,100,000.** Ready for bids end of September.

Wis., Green Bay—CHURCH—St. Judes Catholic Congregation, plans by Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., church. **$800,000.**

Wis., Madison—STORE—Woldman Bldg. Corp., 135 S. LaSalle St., Chicago, Ill., plans by John C. Flad & Assocs., 2525 University Ave., 3 story, 90x144 ft. store, **$750,000, J. C. Penney Co., New York, N. Y.** lessee. Bids in November.

Ont., Ottawa—HEADQUARTERS—Canadian Broadcasting Corp., 140 Wellington St., Ottawa, 8 story with three wings, Y-shaped, national headquarters bldg. **$500,000.**

INDUSTRIAL BUILDINGS

Conn., Shelton—WAREHOUSE—B. F. Goodrich Co., 500 S. Main St., Akron, O., plans by Henry A. Pfisterer, 111 Whitney Ave., New Haven, 50,000 sq. ft., steel frame warehouse, Canal St., 350 ft. railroad siding, **$500,000.** CD 8/16.

Fla., Tampa—PLANT and DISTRIBUTION WAREHOUSE—Laclede Steel Co., William M. Akin, pres., 812 Olive St., St. Louis 1, Mo., steel fabricating plant and distribution warehouse, 7.5 acre tract fronting on Tampa Bay, incl. rail-water terminal, mill type building with overhead dock crane and barge slip. **$600,000.** To go ahead in 1958.

Ill., Aurora—FACTORY AND OFFICE—National Metalwares, Inc., 615 Walnut St., Aurora, Plans by L. R. Solomon & Assocs., 61 W. Superior St., Chicago, 1 story brick factory and office, 700 N. Russell St., **$600,000.**

▲ **Ind., New Albany**—FACTORY—Pillsbury Mills. Inc., Pillsbury Bldg., Minneapolis, Minn., factory for refrigerated foods division, to make biscuits and rolls, on 36 acre site on State Road 111, at north edge of city. **$1,000,000.**

Ind., Richmond—PLANT—Eaton Mfg. Co., Automotive Gear Div., 739 E. 140 St., Cleveland 10, O., 35,000 sq. ft. addn. to existing plant, plus 2,800 sq. ft. office space. $500,000. Bids by invitation about the end of September. George S. Rider Co., Terminal Tower, Cleveland 13, O., consult. engr. CD 8/21.

▲ **La., La Place**—CHEMICAL PLANT—E. I. DuPont DeNemours & Co., DuPont & Nemers Bldgs., Wilmington, Del., chemical plant, **$10,000,000.**

▲ **La., Norco**—PLANT—Shell Chemical Corp., 380 Madison Ave., New York 17, N. Y., glycerin (via arolien) plant, **$7,000,000.**

▲ **Mass., New Bedford**—WAREHOUSE—Quaker Oats Co., 345 Merchandise Mart Plaza, Chicago, Ill., and Merchants Cold Storage & Warehouse Co., 160 Kinsley Ave., Providence, R. I., cold storage warehouse, **$1,000,000**; fish processing plant, **$2,500,000.**

▲ **Minn., Minneapolis**—GENERATING PLANT—Northern States Power Co.; 15 S. 5 St., 150,000 kw. Unit No. 4, at Black Dog Generating Plant, near here. **$25,000,000.** Constr. in Fall.

Mo., Kansas City—PLANT—Merriam Mortgage Co., Commerce Bldg., Kansas City, Mo., pilot and interim manufacturing plant, leased to Western Electric, near Truman Corners at US 71 and Blue Ridge Blvd. **$750,000.**

N. J., Trenton—PLANT—Trenton Times, South Stockton St., plans by Arthur Milnanow of Chas. T. Klauder Assocs., Philadelphia Natl. Bank Bldg., Phila., Pa., 75,000 sq. ft., brick, glass plant, Perry, Carroll, Kussuth and Ewing Sts. **$750,000.**

Pa., Fort Washington—PLANT—Standard Pressed Steel Co., Jenkintown, 53,000 sq. ft. plant addn. **$500,000.**

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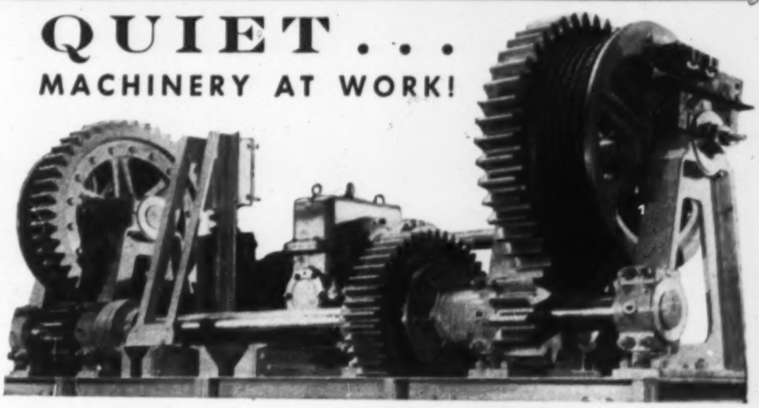

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▲ **Pa., King of Prussia**—RESEARCH, DEVELOPMENT CENTER—General Electric Co., Missile Development Div., 202 State St., Schenectady, N. Y., plans by Vincent G. Kling, 917 Corinthian Ave., Phila., Pa., research and development center, **$5,000,000**. CD 2/27/56.

▲ **Pa., Pittsburgh**—BUS TERMINAL, etc.—Penna. Greyhound Lines, 2341 Carnegie Ave., Cleveland, O., plans by Arrasmith & Tyler, company archts., 3 and Guthrie Sts., Louisville, Ky., 5 story, brick, block, steel frame, rein.-con. bus terminal and parking garage, Liberty Ave. between 11 and 12 Sts., **$2,500,000**. CD 7/19/56.

▲ **S. C., Laurens**—FACTORY—L-O-F Glass Fibers Co., 1810 Madison Ave., Toledo, O., factory on 88 acre site to make glass, textile yarn, (former airport site 2 mi. east of city).

Tex.,Dallas—ELECTRIC—Southwestern Bell Telephone Co., 308 S. Akard St., Dallas, 3 story, 75,000 sq. ft. masonry, western electric bldg. addn. **$650,000.**

▲ **Tex., Port Arthur**—PLANT UNIT—Gulf Oil Corp., 7th St. Rd., constr. 3rd 20,000,000 lb. per year Ethylene Plant Unit **$7,000,000**. CD 8/7/56.

▲ **Wash., Walla Walla**—PLANT—Boise-Cascade Corp., Boise, pulp and paper mill and container plant, **$2,000,000**. To start next year.

Ont., Windsor—WAREHOUSE—Baum & Brody Ltd., Benjamin Brody Esq., pres., 1306 Victoria St., warehouse reconstr. Over **$500,000**.

UNCLASSIFIED

California—RURAL DISTRIBUTION LINES—Suprise Valley Electrification Corp., Alturas, 78 mi. electric distr. line, 72 mi. 66 KV transmission line and sys. imprvs., Modoc Co. **$696,869**.

Calif., Oakland—TELEVISION STUDIO—San Francisco—Oakland Television, Inc., 1000 Van Ness Ave., San Francisco, television studios off Washington St. part of Oakland Lane. **$250,000.**

Connecticut and Massachusetts—PETROLEUM PIPE LINE—Connecticut-Massachusetts Pipe Lines Inc., West River St., Orange, 8 in. petroleum pipe line capacity 38,000 bbls. daily, 70 miles, pump and control stations between New Haven, Conn. and Springfield, Mass. **$500,000.** Sydney S. Smith, 510 Sixth Ave., New York, N. Y., consult. engr.

† **Conn., Groton**—SWIMMING POOL, etc.—U. S. Coast Guard Academy, New London, plans by Pedersen & Tinley, 111 Whitney Ave., New Haven, 1 story 124x225 ft., brick swimming pool and drill hall. **$279,000**.

† **Conn., Newington**—BOILERS—Veterans Admin., Munitions Bldg., Wash., D. C., replacing boilers at Veterans Administration Hospital. **$300,000.**

▲ **Ill., Chicago**—YARD FACILS—Chicago Transit Auth., 734 Merchandise Mart, Chicago, yard facilities, and tracks, 1 story brick terminal bldg., Des Plaines Ave., Forest Park, **$2,500,000.** CD 4/26/45.

▲ **Kentucky**—RURAL DISTRIBUTION LINES, etc.—Green River Rural Electric Co-operative, Owensboro, sub-station, switching station at Whitesville, 23 mi. of 69 K. V. transmission line, 27 mi. tie line, etc., Davies Co. **$1,800,000**. R. E. A. loan approved. CD 1/11/51.

Minn., Crystal—SWIMMING POOL, etc.—Village, K. Evans, clk., **$165,000** bond election Sept. 24, swimming pool, bath house and wading pool, and **$300,000** bonds for park imprvs. and land acquisition.

▲ **N. Y., New York**—PIER—Dpt. Marine & Aviation, Pier A, North River, Zone 4, Proj. D-49, new pier, piershed, bulkhead shed and equipment for imprvt. known as Pier 36, near foot of Spring St., North River. **$3,250,000**. Tumbarkin, Morgan & Emerman, 1400 Nassau St., Zone 7, consult. engrs. CD 8/15/55.

▲† **N. Y., New York**—TUNNEL—General Services Admin. P. Bldg. Service, 18 and F Sts. N.W., Wash. 25, D.C. underground passage tunnel which will connect the General Post Office and Morgan St. Post Office buildings, **$1,300,000.** Rudolph F. Schaefer, 76 9th Ave., New York, Zone 11, consult. engr. (Correction—engineers address). CD 7/26.

▲ **North Carolina**—RURAL DISTRIBUTION LINES—Union Electric Membership Corp., Monroe, 50 mi. rural distr. lines, 32 mi. 44 kv transmission line and sys. imprvs., Union Co., **$1,540,000**. CD 11/15/51.

O., Dayton—SWIMMING POOL—City, City Hall, swimming pool, Triangle Park. **$300,000**. CD 11/28/45

▲ **Oklahoma**—STORAGE FACILITIES—Cities Service Gas Co., First National Bldg., Oklahoma City, gas storage facilities for Elk City Field, Elk City, Montgomery Co. **$2,683,073**.

▲ **Oklahoma**—RURAL DISTRIBUTION LINES—Northeast Oklahoma Co-operative Assn., Vinita, 121 mi. rural distr. lines and stations, Vinita, Craig Co., **$1,700,000**. Harold Carter, Vinita, engr. CD 4/9/52.

Oklahoma—RURAL DISTRIBUTION LINES—Oklahoma Electric Co-operative, Norman, 117 mi. addnl. rural electric lines, Cleveland Co. **$615,000**. G. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engrs. CD 11/4/54.

Pa., Phila.—PLAYGROUNDS, etc.—Dpt. Procurement, City Hall Annex, Phila., plans by John Sweet 12 S. 12 St., Phila., Aramingo Playground, Armingo and Lehigh Aves., **$100,000.** CD 2/8/45;

plans by Geddes & Brecher, 2047 Locust St., Phila., Pa., Tarken Recreation Center (playground) Summerdale Ave. and Levick St., **$100,000.** CD 3/4/57;

plans by Oscar Stonorov, 1621 Chestnut St., Phila., Pa., Dem Field (playground) Adams Ave. and Church St. **$100,000;**

plans by Horace Fleisher, Fox Bldg., Phila., Pa., Harrowgage Park (park and playground), Tioga St. and Kensington Ave., **$100,000;**

plans by Harbeson, Hough, Livingston & Larson, 1117 S. 17 St., Phila., Pa., Kirkbridge Recreation Center (playground) 46 St. and Haverford Ave., **$360,000;**

plans by William H. Lee, Penn Center, Phila., Pa., playground, 8 St. and Lindley Ave. **$100,000.**

South Dakota—RURAL DISTRIBUTION LINES—West Central Electric Co-operative, Murdo, rural distr. lines and sys. imprvs., Jones Co. **$142,000,** Uteig Eng. Corp., 1114½ Front St., Fargo, N. D., consult. engrs. CD 5/5/55.

Texas—RURAL DISTRIBUTION LINES—Comanche County Electric Co-operative, Comanche, 72 mi. distr. lines, sys. imprvs., 42 mi. tie-lines, increasing capacity 250 distr. transformers, conversion 88 mi. line Comanche Co. **$800,000.**

Texas—RURAL DISTRIBUTION LINES—Kimble Electric Co-operative, Inc., Junction, 33 mi. electric distr. line and sys. imprvs., Kimble Co. $196,000. CD 1/8/54.

Tex., Amarillo—TV STATION—Southwest States, Inc., c/o Murry Worener, Amarillo Bldg., TV station. **$100,000.**

▲ **Tex., Beaumont**—COLISEUM—City, City Hall, defeated bonds Aug. 17, Babe Zaharias Memorial Coliseum, **$2,500,000**. (Correction—status). CD 8/23.

Tex., Monahans—TELEVISION STATIONS—Tri-Cities Broadcasting Co., Monahans, Television station, **$100,000**.

† **Wash., Walla Walla**—ELECTRICAL DISTRIBUTION SYSTEM—Veterans Admin., Munitions Bldg., Wash., D. C. underground electrical distr. sys. **$400,000.**

West Virginia—FREIGHT TERMINAL—Suburban Motor Freight, Inc., 1100 Kinnear Rd., Columbus, O., plans by Benham, Richards & Armstrong, 1124 Goodale St., Columbus, O., all steel freight terminal with brick concrete facing, having 7200 sq. ft. floor space, 20 door freight dock, on Rte. 7, between Bridgeport and Bellaire, near Wheeling, **$225,000.**

† **Alaska, Fairbanks**—RAILROAD STATION—The Alaska Railroad, Dpt. Interior, Anchorage, railroad station, **$250,000**. Work may start next year.

▲ **Puerto Rico**—GENERATING UNIT—Puerto Rico Water Resources Auth., San Juan, Puerto Rico, constr. 44,000 kw steam generating unit, addnl. electric generation and transmission facilities, San Juan Co. **$10,900,000**. CD 3/13/52.

Ont., Toronto—CURLING RINK—W. Kojola c/o Gordon Bazeley, archt., 193 Forest Hill Rd., Toronto, 100x200 ft. curling rink, **$100,000.**

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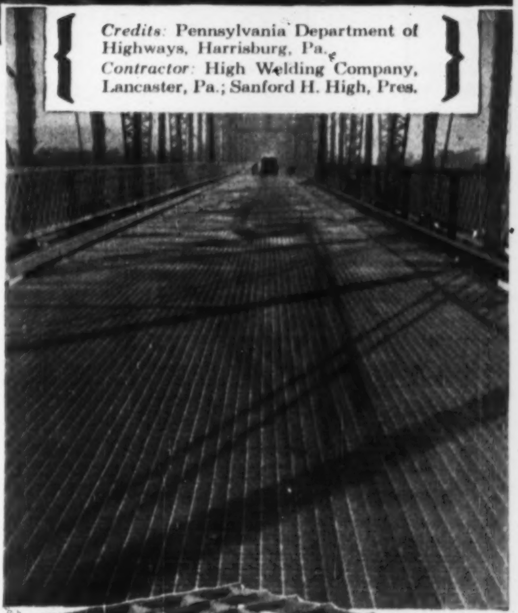

Credits: Pennsylvania Department of Highways, Harrisburg, Pa.
Contractor: High Welding Company, Lancaster, Pa.; Sanford H. High, Pres.

Lightweight steel flooring increases carrying capacity of bridge.

THE OLD CONCRETE DECK on the 19′-wide roadway of the 1,440′-long Mifflinville, Pa. bridge, shown above, was in such condition that further repair was impractical. The existing concrete deck, *which was only 4″ thick,* was aged and worn.

By removing the old concrete deck, adding *one* row of new stringers, and placing 27,360 sq. ft. of open I-Beam-Lok steel flooring over the full length and width of the roadway, the engineers on the project not only solved the problem of added dead weight, but actually increased the carrying capacity of the bridge. The open steel flooring also put an end to costly maintenance.

In commenting on the use of USS AmBridge I-Beam-Lok on this reflooring job, Mr. Sanford H. High, of the High Welding Company, says: "Due to the ease of handling and the accuracy of the steel flooring which was fabricated in 6′2″ units, we were able to lay it fast and keep far ahead of the schedule set up by the Pennsylvania Department of Highways, therefore reducing inconvenience to the public to a minimum."

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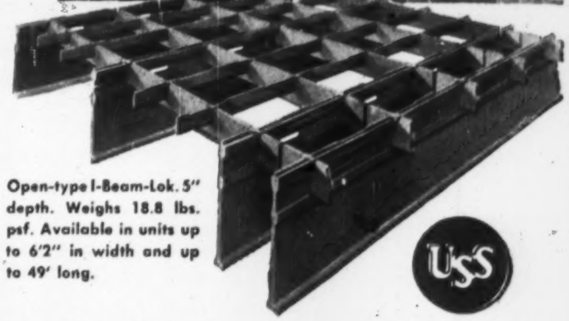
For detailed information about the time-and-money-saving advantages of this modern lightweight steel flooring for bridges, let us send you a copy of our catalog. Contains latest design data and application details. Describes both open and concrete-filled types of USS AMBRIDGE I-BEAM-LOK.



Open-type I-Beam-Lok. 5″ depth. Weighs 18.8 lbs. psf. Available in units up to 6′2″ in width and up to 49′ long.

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USS AMBRIDGE I-BEAM-LOK BRIDGE FLOORING

UNITED STATES STEEL

Bids—Low Bids—Contracts—Second Edition

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 16 Connecticut
STREETS AND ROADS
September 16 Connecticut September 17 Massachusetts

HEAVY CONSTRUCTION—LB & CA

▲ **VERMONT**—State Dpt. Hys., State House, Montpelier, **Lane Constr. Corp.**, 965 East Main St., Meriden, Conn. CA **$2,412,772**; grading, draining, sub-base with bit. concrete surf. course and two 3 span steel I-beam structures with a concrete floor and two span steel I-beam structures with concrete floor, approx. 5.879 mi. northerly of Mass.-Vt. state Line and extending northerly 1.942 mi. on Bernardston, Mass.-Brattleboro, Vt. Rd. Bids Aug. 23, CD 8/27, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 19 New York

HEAVY CONSTRUCTION—LB & CA

▲ **Cayuga Foundation Corp.**, 30 Vesey St., New York 7, N. Y., LB **$9,145,061** (5 bidders) part of Rapid Transit Railroad, Section 2, of Route 112, Manhattan Boro, Contr. C-124, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Aug. 30. CD 8/13.

▲ **PENNSYLVANIA**—Commonwealth of Pa., Dpt. Hys., 506 North Office Bldg., Harrisburg, Bids opened 8/30,

Pa.—**D. E. Smith, Inc.**, Mifflintown, Pa., LB **$222,657** (4 bidders) crushed aggreg. base with bit. surf. 14,620 ft. incl. one rein.-con. box culvert on Rte. L.R. 636 (1) T.R. 235, Delaware and Fayette Twps., Juniate Co., LB **$288,068** crushed aggreg. base with bit. surf. 11,260 ft. incl. rein.-con. box culvert, also prestressed precast rein.-con. deck bridge on Rte. L.R. 293 (1) T.R. 17 in Liverpool Twp. thence northwesterly, Perry Co.;

Pa.—**Lycoming Constr. Co.**, 127 Susquehanna St., Williamsport, Pa., LB **$8,867,834** (11 bidders) constr. divided hy. consisting c. conc. pavt. variable in width 37,593 ft. incl. I-beam bridge, 2 rein.-con. arches 8 rein.-con. box culverts, 1 plate girder, 1 rein.-con. 3 I-beam and 4 optional superstructure bridges, also constr. intersecting hys. streets, twps. roads ramps and service roads with c. conc. pavt. crushed aggreg. base with bit. surf. selected material surf. of various widths and incl. 1 optional superstructure, 2 rein. con. 2 prestressed precast rein.-con. box culvert within an overall length of 53,204 ft. beginning In North York Boro, by-passing York City in a southerly direction incl. York, Spring Garden, Springettsbury, Manchester Twps. and North York Boro, Rte. L.R. 789 (1) T.R. III., Federal Interstate Proj., York Co.;

Pa.—**Charles Riebe**, 333 Columbia Ave., Palmerton, Pa., LB **$394,750** (11 bidders) crushed aggreg. base with bit. surf. 17,499 ft. and constr. 4 rein.-con. bridges on Rte. L.R. 06119 (3) Lyons-Topton Boroughs, Maxatawny, Rockland and Longswamp Twp., Federal Aid Secondary Proj., Berks Co.;

Pa.—**Latrobe Road Constr. Co.**, Box 150, Latrobe, Pa., LB **$1,428,284** (6 bidders) wid'n. existing pavt. with c. conc. base and surf. new base course and existing pavt. with bit. surf. 36,230 ft. incl. exten. 6 existing rein.-con. structures on Rte. L.R .72 (R-6) T.R. U.S. 8, Middlesex, Penn Twps., Federal Aid Proj., Butler Co.;

Pa.—**L. M. Hutchinson**, R.D. 1, Mount Union, Pa., LB **$979,845** (8 bidders) crushed aggreg. base course, surf. existing pavt. with bit. surf. 38,125 ft. incl. constr. 3 prestressed precast rein.-con. bridge decks exten. 3 existing bridges with prestressed precast rein.-con. bridge decks on Rte. L.R. 58-(5-9) T.R. 64 Walker and Porter Twps., Federal Aid Secondary Proj. Centre and Clinton Counties;

Pa.—**B. G. Coon Constr. Co.**, 278 Union St., Luzerne, Pa., LB **$385,419** (2 bidders) wid'n. 32,612 ft. and overlay existing road with bit. surf. and constr. 2 rein.-con. bridges on Rte. L.R. 177 (2) T.R. 487 from near the Luzerne Sullivan Co. line northwest, Colley Twp. Federal Aid Secondary Proj. Sullivan Co. CD 8/9.

BUILDINGS—LB & CA

▲ **Banner Homes**, c/o Lane Realty, 107-40 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$3,000,000.** 100 HOMES, E. 52 St. and Avenue S, BROOKLYN, N. Y.

▲ **All-State Homes**, c/o Line Realty Co., 107-40 Queens Blvd., Forest Hills, N. Y., Owner Builds. **$8,000,000.** 500 HOMES, Jericho Turnpike and Veterans Memorial Hy., COMMACK, N. Y.

▲ **Lakeside Village**, c/o Herman H. York, 90-04 161 St., Jamaica, N. Y., Owner Builds, **$5,100,000.** 300 HOMES, Mohansic Ave. near Taconic State Parkway, LAKE MOHANSIC, N. Y.

▲ **Walsh Constr. Co.**, 711 Third Ave., New York 17, N. Y., CA Est. **$4,000,000.** NURSES DORMITORY and LABORATORY, York Ave. and 66 St., NEW YORK, N. Y. Rockefeller Institute for Medical Research, York Ave. and 65 St., New York, N. Y. Harrison & Abramovitz, 630 Fifth Ave., New York 20, N. Y., archts. CD 10/1.

▲ **Woodbrook Manor**, c/o Joseph Kapraw, archt., 277 North Ave., New Rochelle, N. Y., Owner Builds. **$2,550,000.** 85 HOMES along Haviland Lane, WHITE PLAINS, N. Y.

▲ **Jack Gushin**, operating as **Bee Jack Development Corp.**, Box 1896, Perth Amboy, N. J., CA Est. **$4,875,000**, 290 HOUSES, West Park Ave. and Route 35 to be known as Green Lawn, OAKHURST, N. J. Jack Gushin, c/o J. Lester Rigby Assocs., 659 Tinton Ave., Shrewsbury, N. J. Percy Irory, 1087 Springfield Ave., Irvington, N. J., archt.

▲ **D. S. Warfel Assoc.**, 440 N. Prince St., Lancaster, Pa., LB **$2,349,000**, 4 story, masonry, concrete, steel, block HOSPITAL addn., LANCASTER, PA. Lancaster General Hospital, 525 N. Duke St., Lancaster, Pa. Bids Aug. 22. CD 7/31.

▲ **Wildberger-Best Constr. Co.**, 2025 E. North Ave., Baltimore 13, Md., CA **$3,597,000** brick, concrete, steel, block, Patterson HIGH SCHOOL, City Hospital Grounds, BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore, Md. Bids Aug. 28. CD 8/30, under LB.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 19 Florida
STREETS AND ROADS
September 19 Florida September 19 Kentucky

BUILDINGS—BA

▲ **Va., Fort Belvoir**—HOUSING—BA About 9/19—U. S. Eng., 1st and Douglas Sts., Wash., D. C., 300 unit permanent family housing, $3,000,000. CD 2/1.

HEAVY CONSTRUCTION—LB & CA

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Sq., Atlanta, Ga.—**Scott Constr. Co., Inc.**, Thomasville, Ga. CA **$2,344,300.** grading, paving, 13.947 mi. bridge over A.C.L.R.R. and bridge over Ochlonkee River on Thomasville Bypass, U. S. Rte. 19, Proj. F 006-1 (5) and F-007-2 (5), Thomas Co.;

Ga.—**C. W. Matthews Constr. Co.**, 119 Alexander St., Marietta Ga. CA **$749,458.** wid'n., reconstr., resurf. 10.863 mi. State Rte. 6, U. S. Rte. 278, F-020-1 (5), Polk Co. Bids July 26. CD 7/30, under LB.

▲† **Terminal Constr. Co. & Frouge Constr. Co.**, State Hy. 17 and Moonache Ave., Wood-Ridge, N. J., LB **$19,191,750**, est. $20,000,000. Armed Services Housing, IFB 08-621-57-59, vicinity of HOMESTEAD, FLA. Base Contracting Officer, Homestead Air Force Base, Homestead, Fla. Bids Aug. 29. CD 8/7.

BUILDINGS—LB & CA

▲ **M. B. Kahn Constr. Co.**, Box 595, Columbia, S. C. CA **$3,135,948.** low-rent HOUSING, Ga-2-7, SAVANNAH, GA. Savannah Housing Auth., 200 E. Broad St., Savannah, Ga. Bids Aug. 14, awarded Aug. 26. CD 7/8, under LB.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 17 Illinois, Indiana
STREETS AND ROADS
September 17 Illinois, Indiana

▲ **Ill., Chicago**—BA 9/30—City, City Hall, 9 span, 506 ft. steel, concrete Van Buren Street Bridge over NW Superhighway, $3,000,000. CD 6/10.

HEAVY CONSTRUCTION—LB & CA

▲ **ILLINOIS**—State Div. Hy., Centennial Bldg., **S. J. Groves & Sons Co.**, 1104 W. Reynolds St., Springfield, Ill., CA **$5,690,000**, 7.8 mi. c. conc. pavement and 7.8 mi. b. conc. pavement for test road. Bids Aug. 2, awarded Aug. 29. CD 8/6.

▲ **Panama-Williams Constr. Co.**, Melrose Bldg., Houston, Tex., CA Est. **$3,671,000.** constr. 12 in. petroleum pipeline for 85 mi. between Robinson and Champaign, ILLINOIS. Ohio Oil Co., 529 S. Main St., Findlay, O. Awarded Aug. 21. CD 8/22.

BUILDINGS—LB & CA

▲ **George A. Fuller Co.**, 111 W. Washington Blvd., Chicago, Ill., CA **$3,500,000**, 1 story brick, Fisk Generating PLANT addn., 1111 W. Cermak Rd., CHICAGO, ILL. Commonwealth Edison Co., 72 W. Adams St., Chicago 90, Ill. Naess & Murphy, 80 E. Jackson Blvd., Chicago, Ill., archts.

▲ **Burt Homes, Inc.**, 16021 Wes McNichols St., Detroit, Mich., CA Est. **$7,000,000.** Meri-Lynn HOUSING DEVELOPMENT incl. 398 brick homes, LIVONIA, MICH. Meri-Lynn Farms, Schoolcraft and Merriman, Livonia, Mich.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
September 17 Iowa September 20 Minnesota
STREETS AND ROADS
September 17 Iowa September 20 Minnesota

BUILDINGS—LB & CA

▲ **Grimshaw Constr. Co.**, Enterprise Bldg., Tulsa, Okla., LB **$3,195,607.** Nathan Hale SENIOR HIGH SCHOOL, TULSA, OKLA. Bd. Educ., 410 S. Cincinnati St., Tulsa, Okla. Bids Aug. 2. CD 7/18.

▲† **C. H. Leavell & Co. and Don Ponoer**, 1900 Wyoming St., El Paso, Tex., LB **$6,798,400**, est. over $5,000,000, 490 NCO Capehart HOUSING UNITS, Fort Bliss, ENG-29-005-58-12, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Aug. 23. CD 8/1.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 25 California

HEAVY CONSTRUCTION—LB & CA

▲ **Guy F. Atkinson Co.**, 10 West Orange Ave., South San Francisco, Calif., CA **$2,596,848**, powerhouse constr., install turbine-generators at Swift Dam No. 1 Skamania Co., WASHINGTON. Pacific Power & Light Co., 920 S.W. 6th Ave., Portland, Ore. CD 7/3, under LB.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
September 18 Ontario

▲ **Que., Montreal**—EXPRESSWAY—BA 9/25—Montreal Metropolitan Comn., 506 St. Catherine St. E., Sect. No. I, Metro Blvd. Expressway from point 839 ft. east of C.N.R. tracks, Mount Royal, to point 2,511 ft. west of C.N.R. tracks, St. Laurent, approx. 13,000 ft., incl. work at Decarie traffic circle. $8,000,000. Plans deposit $500. Brouillet & Carmel, 3600 Barclay Ave., and Lalonde, Girouard & Letendre, 8790 Park Ave., engrs. CD 7/22/55.

HEAVY CONSTRUCTION—LB & CA

▲ **Northern Constr. Co. & J. W. Stewart Ltd.**, 1304 Hornby St., Vancouver, B. C. **$5,500,000.** deep sea pier in Vancouver Harbor, incl. two arms of pier extending 1,200 ft. and 600 ft. into harbor 600 ft. wide with berthing facilities for 4 ships VANCOUVER, B. C. National Harbor Bd., Govt. of Canada, Ottawa, Ont. CD 2/10/43.

▲ **Miron Constr. Ltd.**, Walsh-Canadian Constr. Co. Ltd., and **J. D. Stirling Ltd.**, c/o 940 Cote de Liesse Rd., Montreal, Que., LB **$7,694,000** (15 bidders) Section IV, elevated expressway, Metropolitan Blvd. from point west of St. Lawrence Blvd. to eastern limits of MONTREAL, QUE. City, City Hall, Montreal, Que. Bids Aug. 28. CD 8/8.

BUILDINGS—LB & CA

▲ **Mondon Inc.**, 50 rue du Palais, Quebec City, Que., CA Est. **$3,500,000.** 1 story 74x360 ft., steel brick SULPHITE MILL addn., CLERMONT, QUE. Donohue Bros. Ltd., 51 Desjardins St., Quebec City, Que. Awarded Aug. 21. CD 8/6.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ **TIPSA** (North American Utility & Constr. Co., International Co., Fish Northwest Enterprises and Fish Eng. Co.) M & M Bldg., Houston, Tex., U.S.A., CA **$115,000,000.** 1,015 mi. 24 in. natural gas pipe line Camp Duran Field to Buenos Aires and 930 mi. 12 in. crude line field to San Lorenzo, **ARGENTINA.** Yacimientos Petroliferos Fiscales (Y.P.F.) **Argentina** Govt., Buenos Aires, Argentina. (**Correction**—contractor). CD 4/10.

U. S. POSSESSIONS

HEAVY CONSTRUCTION—BA

▲ **Hawaii**—BA 10/24—At Office of the Manager-Chief Engineer of Hawaii Water Auth., Honolulu, T. H., water tunnel, incl. approx. 27,000 lin. ft. water conveyance and development tunnel, consisting 25,000 lin. ft. 6 ft. 6-in. x 8 ft. horseshoe shaped section and 2,000 lin. ft. 8 ft. diam. circular section, drilling wells, misc. pipe lines and diversion structures in Waikolu Valley and appurtenant work, on Island of Molokai. Plans deposit $100. Jacobs Associates, 503 Market St., San Francisco 5, Calif., U. S A., consult. engrs.

(Proposal Advertisement see pp. 154 to 157)

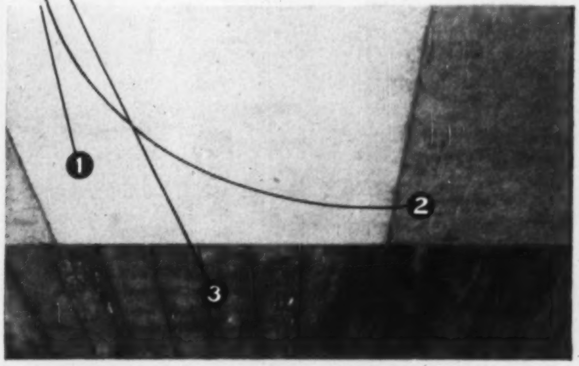
reasons why PLYGLAZE® high-density* overlaid plywood outperforms any form material on the market

1. FORMS SMOOTHER CONCRETE

Hard, glossy-smooth fused resin-fiber surfaces form flawlessly smooth concrete, with no trace of grain pattern. Unretouched photo shows marked difference in appearance quality of concrete cast against PlyGlaze, ordinary plywood and shiplap.

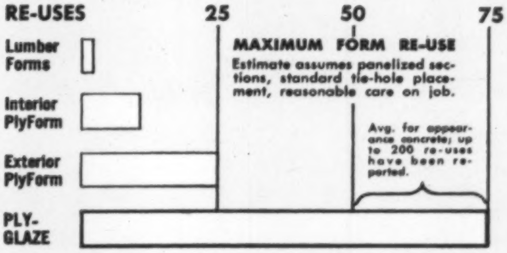
RELATIVE APPEARANCE OF CONCRETE

	Up to 50% of Max. Re-Use	Up to 100% of Max. Re-Use	Where to Use
1. PLYGLAZE	Excellent	Good	For smoothest concrete, maximum re-uses
2. PLYFORM	Good to Fair	Fair to Poor	For fairly smooth concrete, multiple re-uses
3. LUMBER	Poor	Very Poor	Where appearance and re-use not important



2. GIVES MANY MORE RE-USES

PlyGlaze's tough, hard surface stands up under hundreds of pours. With reasonable care, you'll easily get 50 to 75 re-uses. Actually over 200 have been obtained—and even then PlyGlaze continued to form good looking concrete.



MAXIMUM FORM RE-USE

Estimate assumes panelized sections, standard tie-hole placement, reasonable care on job.

Avg. for appearance concrete; up to 200 re-uses have been reported.

3. HELPS CUT COSTS TWO WAYS

A. TIME & LABOR SAVINGS—Sharply reduces rubbing and finishing labor. Ceiling slabs can be painted direct, eliminating expensive plastering. PlyGlaze also cuts form construction, erection and stripping time. High re-use factor eliminates form reconstruction during job.

B. LOW COST PER USE—Even when cost is sole criterion, greater number of PlyGlaze re-uses frequently more than make up for higher initial cost, particularly where costs can be amortized over 25 or more pours.

COST PER-SQUARE-FOOT-PER-USE

No. Re-Uses ➤	1	10	25	50	100	200
PLYGLAZE	$0.375	.038	.015	.008	.004	.002
Exterior PLYFORM	.234	.023	.009	Gives Max. 25 Re-Uses		
Interior PLYFORM	.218	.022	Gives Maximum 10-12 Re-Uses			
LUMBER	.110	Gives Maximum 2-3 Re-Uses				

Estimates based on 30 month average for prices quoted by St. Paul & Tacoma for following material delivered in Chicago: ¾" PlyGlaze; ¾" Ext. & Int. PlyForm, mill oiled, edge sealed; 2 & btr. 1" green Douglas fir or hemlock.

POINTS IN BRIEF

- Has the strength, workability and adaptability of ordinary plywood.
- Strips easily; the non-absorbent surfaces will not stick to the concrete.
- No oiling is needed between the pours other than to facilitate cleaning.
- Overlay will not soften or come loose. Unharmed by alkaline reaction.
- Overlay minimizes moisture pickup and the resultant loss of rigidity.

Hard, glossy, translucent high density* fused-resin fiber overlay bonded to both sides of panel. Resin content controlled to give exact amount of hardness and wear resistance required for form work.

Base panel is top quality DFPA-Inspected solid core Exterior fir plywood. Available in all standard sizes, thicknesses.

ST. PAUL & TACOMA LUMBER CO.
Dept. RN, Tacoma 1, Washington

Please send the material checked:

☐ PlyGlaze Literature

☐ PlyGlaze Samples

Name...

Firm...

Address...

City............................ Zone...... State..............

*HIGH DENSITY (glossy, translucent overlay) is special concrete form panel. MEDIUM DENSITY overlay (opaque with texture similar to drawing paper) is paint grade; not for form work.

CLOW
BELL-TITE
CAST IRON PIPE

costs less to buy, less to lay!

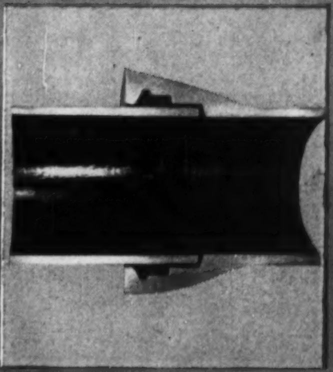
Assembly is simple. *First*, the joint is wiped clean.

Second step — insert gasket as shown into groove in bell.

Third — apply thin film of special lubricant to the gasket.

Next—push home the spigot, first centering plain end in bell.

No bell holes are required. Installation is very rapid.



Result—a safe, economical joint with a tight, permanent seal.

The NEW CLOW BELL-TITE cast iron pipe joint is a rubber seal joint that requires NO bolts, NO nuts, and requires NO wrenches to lay. It takes less time to install. It costs less to buy. Here's economy PLUS.

The Underwriters' Laboratories, after testing the joint, have approved its use for water working pressures up to 350 psi. CLOW BELL-TITE pipe barrel meets all quality provisions and physical requirements of all applicable ASA, AWWA, and/or Federal Specifications for cast iron pipe.

SINCE 1878

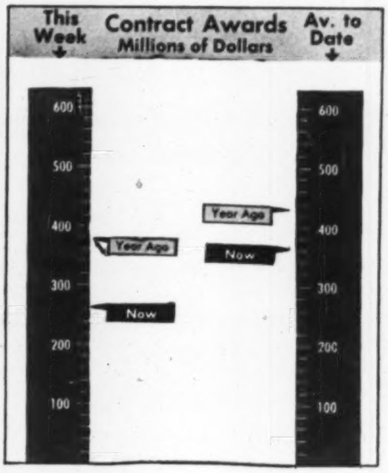
JAMES B. CLOW & SONS, INC.

201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries: Eddy Valve Company, Waterford, New York • Iowa Valve Company, Oskaloosa, Iowa

Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 37 wks 1957	Chge '56-'57
	millions		%
Federal	$10.4	$1,854.0	+49
State and Municipal	121.3	5,423.4	+18
Total Public	131.7	7,277.4	+24
Total Private	130.4	6,138.8	−37
U. S. Total	$262.1	$13,416.2	−14

By Type of Work	This Week	Cum. 37 wks 1957	Chge '56-'57
Waterworks	$3.7	$254.2	+1
Sewerage	5.1	394.2	−7
Bridges	9.1	525.6	+24
Highways	42.9	2,261.6	+30
Earthwork, Waterways	7.9	837.4	+53
Buildings:			
Public, Excl. Housg.	48.7	1,655.5	+12
Public Housing	6.0	496.3	+120
Private Housing	72.9	2,160.6	−48
Commercial	20.6	1,276.4	...
Industrial	15.7	2,338.0	−40
Unclassified	29.5	1,216.4	−2
U. S. Total	$262.1	$13,416.2	−14

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

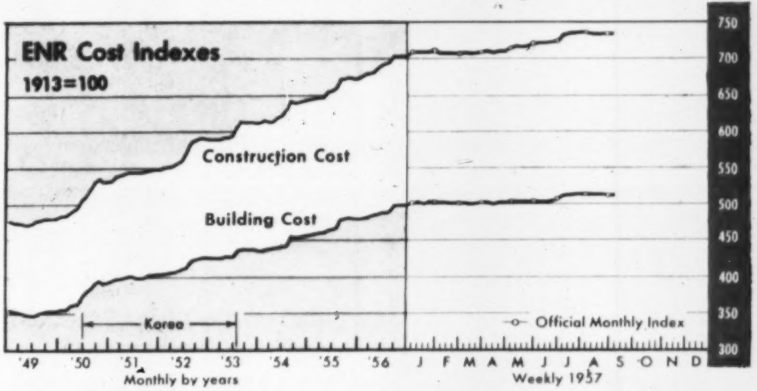
NEW CAPITAL FOR CONSTRUCTION

	Week of Sept. 5	Cum. 36 wks 1957	Chge '56-'57
	millions		%
Corporate Securities	$186.4	$4,096.5	+20
State and Municipal:			
All Except Housing	139.7	3,837.0	+22
Housing	...	155.8	+268
Federal Loans	1.4	165.1	+31
Federal Aid	...	2,161.2	+102
Total Nonfederal	$327.5	$10,415.7	+33
Federal Appropriations:			
In U. S.	$51.9	$2,777.0	−20
Outside U. S.	3.7	29.0	+82
Total New Capital	$383.2	$13,221.6	+17

Cost Indexes as of Now

ENR INDEXES (1913=100), 20-cities' average	Week of Sept. 5 1957	% Change from Aug. 8 1957	% Change from Sept. 6 1956
Construction Cost	737.76	−0.1	+4.7
Building Cost	516.10	−0.1	+3.2

To convert above indexes to 1926=100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949=100: Divide Construction Cost by 4.770; Building Cost by 3.518



CONTRACTS AWARDED	1957 August (millions)	1957 8-Mos. (millions)	% Change from 1956 August	% Change from 1956 8-Mos.
Total U. S., ENR reported	$1,805.5	$12,840.1	−1	−15
Private	850.4	5,900.2	−26	−38
Public	955.0	6,939.8	+40	+24
State and Municipal	811.8	5,120.3	+34	+16
Federal	163.2	1,819.5	+107	+54
ENR Volume Index, 1913=100	528	553	−9	−21

NEW CONSTRUCTION CAPITAL	1957 August (millions)	1957 8-Mos. (millions)	% Change from 1956 August	% Change from 1956 8-Mos.
Total U. S.	$3,287.8	$12,838.5	+6	+17
State and Municipal Bond Sales	568.8	3,853.1	+109	+23
Corporate Security Sales	392.1	3,910.1	−14	+24
Federal Loans, Aid (nonfederal work)	13.1	2,324.9	−72	+94
Federal Appropriations (federal work)	2,313.8*	2,750.4*	−1	−21

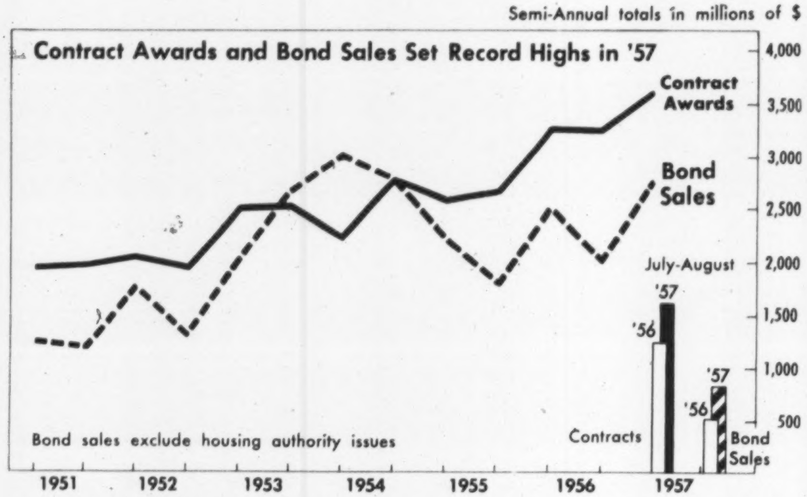
*Includes funds for outside U. S.

MATERIALS SHIPMENTS	Unit	1957 May (M) June (J) July (Jl)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bur Mines	thous bbls	28,940(M)	99,537(5)	−9	−10
Concrete Paving Awards, PCA	thous sq yd	8,896(Jl)	61,543(7)	+78	+18
Fabricated Structural Steel, AISC	thous tons	304(Jl)	2,122(7)	−17	+12
Bookings AISC	thous tons	203([illegible]	1,928(7)	−30	−22
Reinforcing Bars, Net, AISI	thous tons	[illegible]	1,336(7)	−15	+2
Lumber, NLMA	mil fbm	3,005(J)	17,016(6)	−5	−10
Orders	mil fbm	2,934(J)	17,073(6)	−11	−9
Production	mil fbm	2,943(J)	17,221(6)	−2	−8
Douglas Fir Plywood, DFPA, ⅜" basis					
Production (aver per week)	mil sq ft	87.0(Jl)	102.0(7)	+10	+5
Orders (average per week)	mil sq ft	87.5(Jl)	101.3(7)	+14	+11
Clay Products, Bureau of Census					
Brick, Ungl, Common, Face	mil bri	585.6(M)	2,248.2(5)	−11	−17
Vitrified Clay Sewer Pipe	thous tons	152.1(M)	644.5(5)	+11	−8
Structural Tile, Unglazed	thous tons	51.6(M)	241.9(5)	−16	−14
Asphalt Products, Bureau of Census					
Asphalt Roofing	thous sales sqs	4,558(J)	24,385(6)	−18	−14
Asphalt Siding	thous sales sqs	76(J)	489(6)	−18	−9
Aluminum, Wrought, Net, Bur Census					
Sheet and Plate (non-heat treatable)	mil lbs	81.2(J)	487.5(6)	−8	−17
Wire and Cable	mil lbs	23.4(J)	142.2(6)	−3	−10
Extruded Shapes (soft alloys)	mil lbs	57.4(J)	311.5(6)	+8	−5

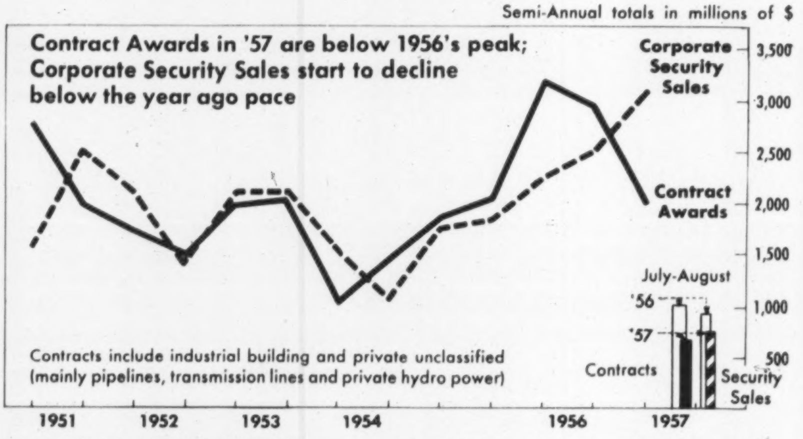
EMPLOYMENT AND FAILURES	Unit	1957 May (M) June (J) July (Jl)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Contract Const Employment, BLS	thous	3,290(Jl)	2,954(7)**	+1	+4
Contractor Failures, Dun & Bradstreet					
Number		153(Jl)	1,232(7)	+9	+22
Liabilities	thous	$7,629(Jl)	$67,141(7)	+2	+22

**Average per month

Capital Markets to Favor Public Works



STATE AND MUNICIPAL bond sales in July-August this year jumped sharply ahead of the same two months last year, accompanying increased volume of state and municipal contract awards, with both trends aiming upward all during the current year.



INDUSTRIAL CONSTRUCTION contract awards this year are down and after a record pace set for the first six months, the corporate securities market shows signs of dropping. With the money now obtained to pay construction bills, July and August corporate sales dropped 16% below last year's corresponding months.

During the first six months of 1957, American business sold a record volume of corporate securities to obtain construction money. But much of the $3.2 billion recorded by ENR was used to pay for construction contracts let during last year's boom, which reached a peak during its first half.

Simultaneously, state and municipal bond sales in this year's first half also were setting records, hitting a total of $2.8 billion. This was 11% more than the total reached in the first half of last year.

But although both corporate security and municipal bond sales have soared to new highs, there are signs the second half of this year will bring a shift in the trend.

Industry's need for capital to pay construction bills is apparently less. During July and August, corporate security sales dropped 16% below the pace set in the same two months of last year. Although those two months are traditionally slow months for corporate financing, the sharp downward trend of industrial contract awards indicates that the corporate securities sale slack is more than seasonal.

However, the industrial construction market is not going to collapse. Many corporations, particularly utilities, will require large amounts of investors' money during the rest of the year. But, any tapering off in the overall demand is bound to benefit the state and municipal bond market.

• Short term needs—Financial authorities place the corporate capital demand during the remainder of this year at $2 billion, which is a definite decline from last year when corporate offerings during the last quarter alone topped $3 billion. This total includes refunding and non-construction money, according to the Securities & Exchange Commission.

Therefore, by continuing to offer the highest interest rates recorded in almost 30 years, state and municipal borrowers should be in a good position to sell a large portion of the bond issue backlog resulting from voter approval of public works projects.

The ability to market the bonds will be the key to an increasing volume of state and municipal construction contract awards. The rapidity of the proposed bond issue buildup is underlined by nearly $4.4 billion in new bonds approved by voters during the 12 month period ending in August of this year, according to the Daily Bond Buyer. The total is a 50% jump over the $2.9 billion in bonds voted in the preceding 12 month period.

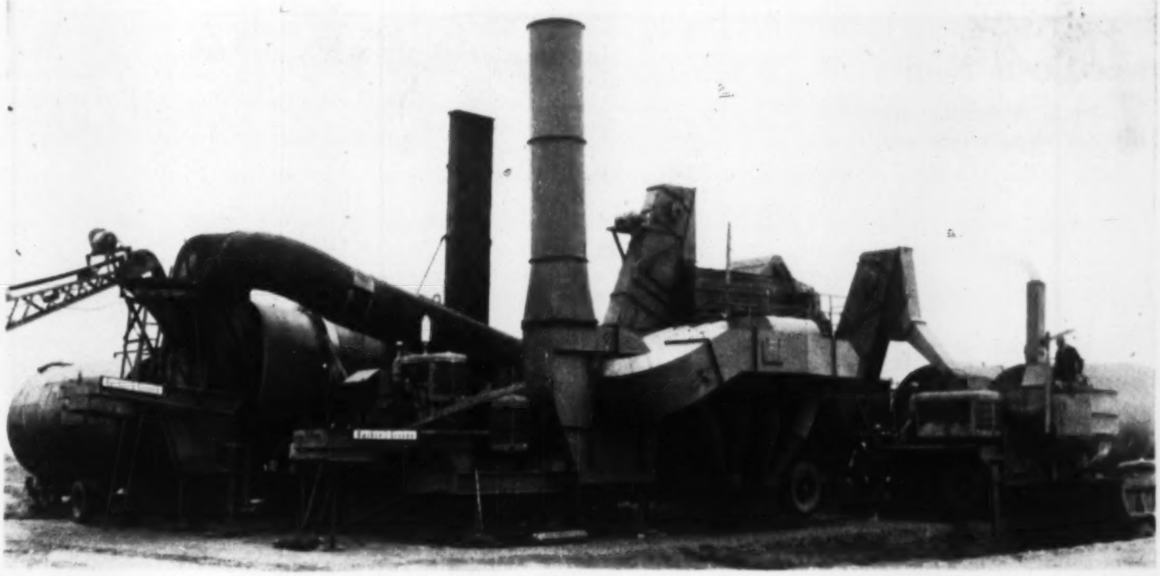
• Two month jump—In contrast to the drop off in corporate security sales in July and August of this year, municipal bond sales during the period moved sharply ahead of the July-August period last year.

The latest two month period saw $887 million in bond sales, compared to $547 million sold to investors in July and August of 1956.

For the first 36 weeks of this year, municipal bond sales for construction outstripped last year's comparable period by 22% as compared with an 11% gain registered at the end of June.

State and municipal contracts also have moved ahead. In the first 10 weeks of this second half, contracts total $1.7 billion—34% above last year.

So far this year contracts are up 18% over 1956, compared with a 12% gain scored at the end of the first half.



How to lower the cost of asphalt paving

with Barber-Greene Continuous Plants . . . available in capacities from 20 to more than 200 tons per hour. Built for maximum portability, these plants produce all types of mixes at highest capacity, and for lowest operating cost. Once the proportions are set, operation is automatic; the human element is eliminated and manpower requirements are reduced to a minimum.

with Barber-Greene BatchOmatics . . . available in 2000, 4000 and 6000 pound sizes. Operating on inherently automatic principles, these plants save seconds at every point in the cycle. Instant changeover from automatic operation to manual production of mixes for the drive-in trade . . . instantly reset to preset repetitive cycle operation. New Dyna-Mix pugmill gives faster coating.

with the Barber-Greene Finisher. Having the widest choice of operating speeds, the Barber-Greene Finisher can lay every job at the maximum speed. It provides positive traction, superior maneuverability and unmatched ease of operation. Wide receiving-hopper simplifies truck discharge, eliminates spillage. No other machine paves as permanently, as speedily and as economically.

56-25-AL

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Power Costs Money

Utilities districts see $1 billion expansion tab

Electrical utilities in the Puget Sound-Cascade region of Washington State plan expansion outlays of $1 billion in the next 12 years. The Puget Sound Utilities Council of Seattle reported that additional transmission lines will be required across the Cascade Mountains from dams planned or under construction on the Columbia River to the heavily populated Puget Sound region.

Ten lines now carry power into the area.

A total of 11 major dams are built or scheduled along the Columbia River and upstream storage—particularly in Canada—will be a major factor in increasing the power output of the Washington plants.

• **Sponsor won**—The extent of the planned construction program was underlined in an announcement by directors of the Washington Public Power Supply System, who said they would ask the Federal Power Commission for a permit to study a proposed 468,000 kw dam across the Columbia River near Richland, Wash.

The facility, with an estimated cost of $150 million, originally was proposed by the Benton County PUD of Prosser, one of the 17 districts comprising the Power Supply System.

Initially the dam, known as the Ben Franklin Dam, would have 12 generators each developing 39,000 kw.

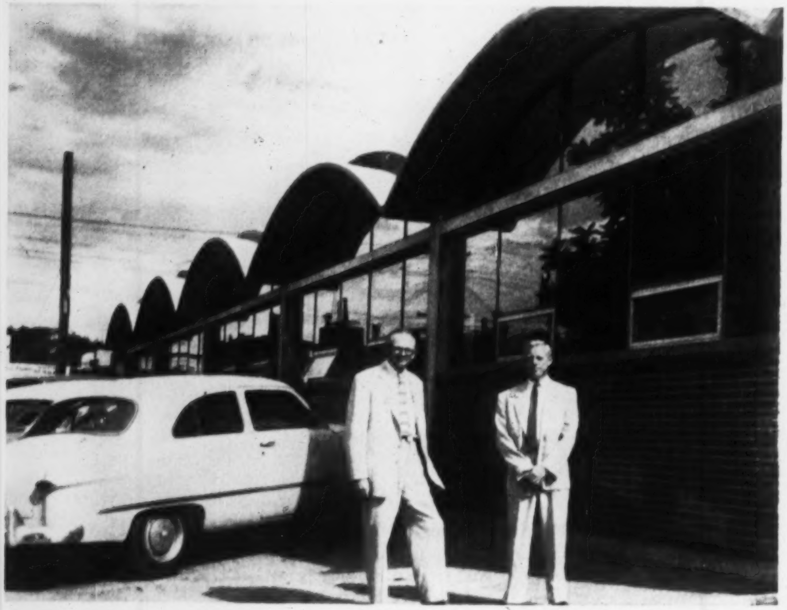
There also would be provision for three more units as upstream storage developed.

The PUD's would have first claim on the proposed dam's supply and the surplus would go to the Northwest Power Pool.

• **Near A-power facility**—The structure would be a combination earthfill and concrete dam eight miles upstream from Richland, near the Hanford works of the Atomic Energy Commission. The dam would form a 50 mile reservoir extending to the base of the Priest Rapids Dam now under construction by the Grant County PUD.

The Power Supply System, organized in February under enabling legislation passed by the 1953 state legislature, is still a "paper" organization, but it has been surveying small projects proposed in the western part of the state.

Members of the Puget Sound Utilities Council of Seattle, who plan the $1 billion power facilities expansion, are Seattle and Tacoma City Light, Snohomish and Chelan County PUD's and Puget Sound Power & Light Co.



Consulting Engineers Buy What They Sell

The specialty of Ketchum & Konkel, consulting engineers, is plainly visible in the design of their new Denver headquarters, formally opened recently. Concrete barrel segments similar to some of the thin-shell structures they have designed for clients comprise the roof.

Five 22½x48 ft cylindrical shells cover an enclosed column-free area 38x113 ft and overhang the masonry and glass walls 5 ft on both long sides of the building. The shells are supported by 12 x 12 in. x 10 ft reinforced concrete columns at the building corners and at points along the side walls where shells meet.

The barrel segments are 3½ in. thick and have a rise of 4 ft. Inside they are coated with acoustic plaster, outside with tar and gravel.

Ketchum & Konkel did the structural design, and Jerome K. Nagel, of Denver, handled the architectural design. Hyder Construction Co., also of Denver, erected the building.

Contractor Failure Halts $8.1 Million in Building

A competitive construction market that brought reportedly "too low bids" contributed to the voluntary bankruptcy of an Ontario general contracting company.

The filing of a bankruptcy writ by George Hardy Ltd. of Ajax, Ontario, brought to a halt construction of a $6.6 million federal government building at Ottawa. Also stopped by the same action was the $1.5 million housing project for the Canadian Army at Barriefield, Ont.

According to the bankruptcy action filed at Toronto, the company had assets of $1 million as against liabilities of approximately $3 million.

The company reportedly lost $500,000 on the $8 million National Film Board building at Montreal, which it completed last spring after three years of construction. Adverse weather conditions delayed the job.

The firm in recent years constructed office buildings, hospitals, a Royal Canadian Air Force supply installation, and several bridges in the Toronto area. All the projects were in the multimillion dollar category.

Consolidated Building Corp. of Toronto has offered to complete the two projects started by the Hardy Co.

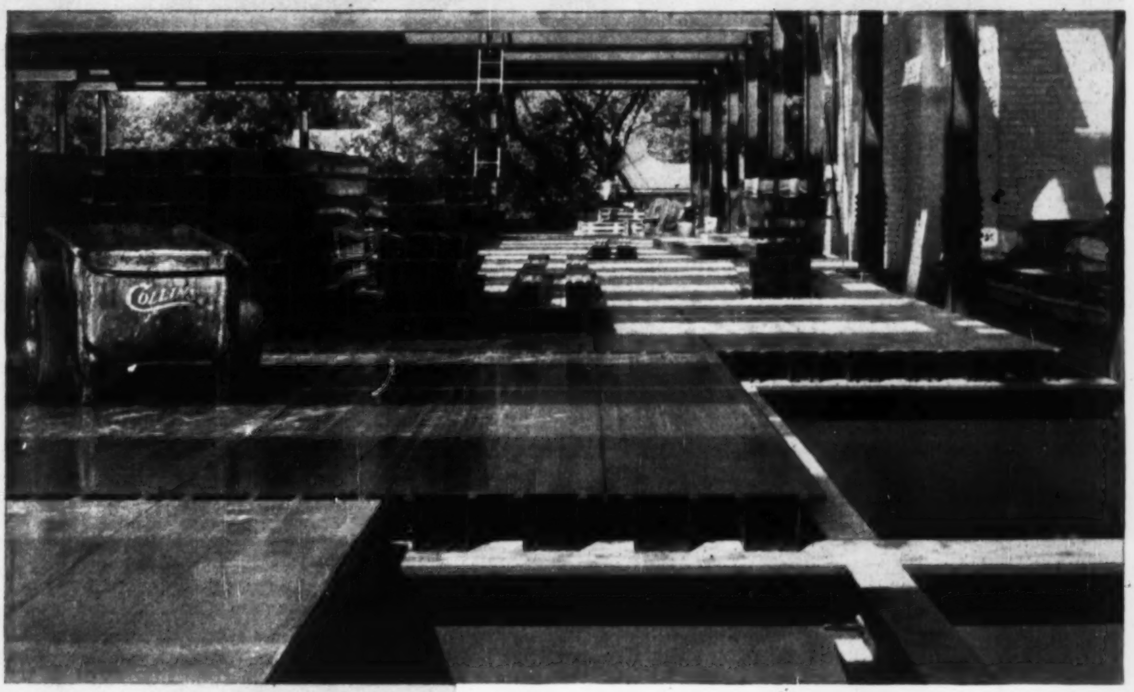
Mokelumne River Will Be Site of New Hydro Project

The East Bay Municipal Utility District, Oakland, Calif., has applied to the Federal Power Commission for a license to build a $63.9 million water and power project on the Mokelumne River in the Sierra Nevada foothills.

Major features of the project are:

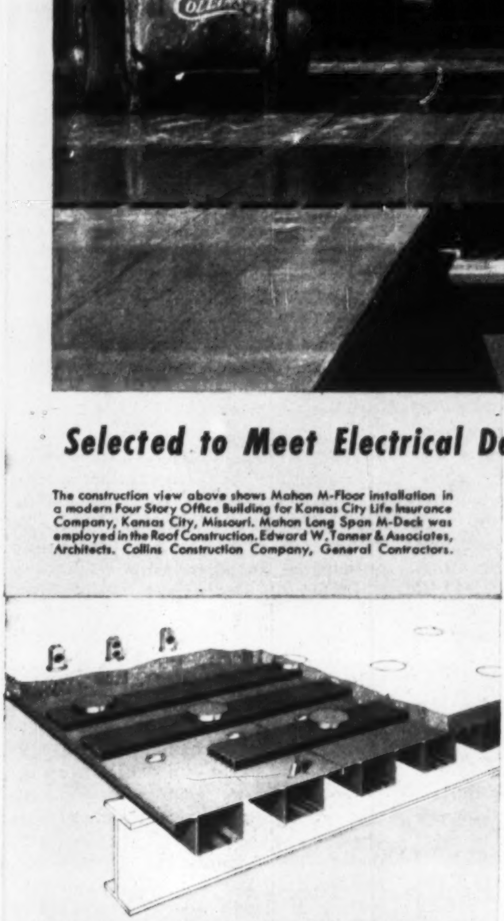
• **Railroad Flat Dam,** a gravity con-

M-FLOORS . . .



Selected to Meet Electrical Demands in Modern Insurance Office Building!

The construction view above shows Mahon M-Floor installation in a modern Four Story Office Building for Kansas City Life Insurance Company, Kansas City, Missouri. Mahon Long Span M-Deck was employed in the Roof Construction. Edward W. Tanner & Associates, Architects. Collins Construction Company, General Contractors.



Sectional View of an Electrified Cellular Steel Floor Constructed with Mahon M-Floor Section M2, and Energized with a Three Header Duct Electrical Distribution System. Mahon M-Floor Cel-Beam Sections are available with either Two or Three 6" wide Cel-Beams in a 24" width, and in several Beam Depths to meet virtually any structural requirement.

In a four story addition to the Kansas City Life Insurance Company's home office building in Kansas City, Mahon M-Floors were selected to meet the unusual live load requirements of 180 lbs. per sq. ft., and to provide the additional electrical raceway capacity required for the myriad electronic business machines and the countless telephone and intercom circuits common to the insurance business. This building, shown under construction above, is a unique design in that it provides for 50 ft. clear span laterally between outside columns on all floors. The Mahon M-Floor Section employed for the structural sub-floor was placed on simple spans of 16'-8". It provided a flat plate upper surface with Cel-Beams of 6" in depth. Electrically, this Mahon M-Floor Section provides Cel-Beam Raceways 6" x 6" on 1'-0" centers under the entire floor area. These 6" wide Mahon Cel-Beams provide the extra raceway capacity needed for this type of occupancy, and permit greater latitude in the location of floor service fittings . . . they also permit the use of 4" diameter access hand-holes between Electrical Header Ducts and the Cel-Beam Raceways—this greatly facilitates fishing for wires and wire pulling when changes in electrical circuits or additional circuits become necessary. High or low Potential Floor Service Fittings can be installed wherever required in every square foot of floor surface throughout the building. When you select an electrified steel sub-floor for your next building, you will want all of the structural and electrical advantages that have been engineered into Mahon M-Floors. Comparison will convince you that the basic functional requisites of a Cellular Steel Sub-Floor are more fully realized in the design of Mahon M-Floor Cel-Beam Sections. See Sweet's Files for information, or write for Catalogue W-57.

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MAHON

crete structure to rise 327 ft above streambed and measure 1200 ft along its crest and to provide 80,000 acre ft of storage space. It will require 1.1 million cu yd of concrete. Estimated cost $30.5 million.

• **Middle Bar Dam,** a concrete arch, 180 ft above streambed, 600 ft long at the crest, with 46,500 acre ft of storage capacity. Cost estimate is $13.9 million.

• **Comanche Dam,** a rolled earthfill, 120 ft above streambed and 1655 ft long. It will require 3.2 million cu yd of earth, including wing dams. Cost will be about $16.9 million.

The MUD hopes to start Middle Bar Dam first, probably within three or four years.

The new dams, together with existing Pardee Dam, will boost the district's storage capacity on the Mokelumne to 566,000 acre ft.

Power features of the project will include three 6,000 kw generators at Middle Bar; two 3,000 kw generators at Comanche; and an additional 7,500 kw unit at Pardee, which already has two 7,500 kw generators.

In addition to these projects, the district also plans to start construction soon on an 80 mile section of its 94 mile $65.5 million third aqueduct from Pardee reservoir to its 200 sq mi service area on the east side of San Francisco Bay (ENR Aug. 18 p 30).

New Bureau Established by N. Y. Public Works Agency

The New York State Department of Public Works has established a new Bureau of Budgetary and Administrative Planning.

The bureau will direct and coordinate the preparation of annual budget requests, capital construction estimates and long-range planning.

Other duties will include the development of program costs, performance standards, improvement of financial reporting systems, and study of special highway or other capital improvements financing.

John Daniels, former principal budget examiner in the Executive Department's budget division, is director of the new bureau. He served in the budget division for 18 years and since 1948 has been chairman of the subcommittee of the Governor's Sponsoring Committee for Public Administration Training.

Steel Firm to Double Its Structural Shape Capacity

Inland Steel Co. has initiated a multi-million dollar expansion program to double the company's production of wide-flange beams.

Joseph L. Block, president, said the expansion program will be completed during the first half of 1959. Structural shape capacity then will amount to 54,000 tons monthly. When the new capacity is installed, the company will discontinue the manufacture of rails.

The company started production of wide-flange beams in late 1955 after alterations and additions to its 1917-vintage structural shape and rail mill.

Mr. Block said that there is excess rail production capacity in the U. S. now and for the future, but the estimated requirements for wide-flange structural beams indicate a continued and growing demand.

The Tempo Slow

Industry plans smaller outlays for expansion

A new government survey indicates that U. S. industry, for the first time in two years, is planning to reduce the amount it spends for new plant and equipment.

The change, if it actually comes about, will bring a slight reduction in the fourth quarter of this year as compared to the third quarter, on a seasonally adjusted basis.

Figures compiled by the Securities & Exchange Commission and the Commerce Dept. indicate plant and equipment expansion in the final quarter at an annual rate of $37.17 billion, down from the $37.23 billion figure that the economists estimate for the current period.

• **Spotty outlook**—By sections, the picture is spotty. Intentions of construction, communications and trade-service industries—lumped together in the survey—indicate fourth quarter outlays at an annual rate of $10.06 billion, off from the $10.10 billion third quarter rate.

In manufacturing, a slight overall decline is expected to a rate of $16.20 billion, as compared with $16.21 in the third quarter. Durable goods industries, running at an annual rate of $8.32 billion in the third quarter, look for a falloff to $8.16 billion in the fourth. But non-durables expect a rise to $8.04 billion from the current rate of $7.89 billion.

On the other hand, public utilities expect to jump their annual rate of investment—$6.33 billion in the third quarter—to a rate of $6.48 billion for the final quarter.

• **High level**—Despite the anticipated fourth period dip, deduced from business intentions as reported to SEC and Commerce, expenditures for 1957 as a whole are being sustained at a record high level—6% above last year. (The 1956 totals, however, were 22% over 1955's.)

The indicated level for 1957, in terms of actual expenditure, is $37.03 billion, compared to $35.08 billion in 1956.

SEC-Commerce present their survey in two sets of figures—one reflecting annually adjusted annual rates by quarters, the second covering actual expenditures.

The latter set now shows that total plant and equipment investment in the upcoming fourth quarter will actually be $9.2 billion, as compared with $9.8 billion a year ago. But government economists are not overly alarmed at these figures because fourth quarter advance expectations consistently have been reported lower than actual expenditures.

In communications, construction and related industries, if fourth quarter intentions are realized this year, actual expenditures will be $2.3 billion, compared with $2.8 billion in the like quarter a year ago.

• **Year's total**—These expenditures would bring the year's total in this sector of the survey to $10.1 billion (off from $11 billion in 1956), or about 26% of the total $37.03 billion anticipated for all industry.

Public utilities expect fourth quarter actual expenditures of $1.7 billion, as against $1.8 billion in the current period. This would see them wind up with a $6.2 billion total for 1957, a $1.4 billion gain from 1956's $4.8 billion.

Despite interest in figures like those immediately above—on actual expenditures—economists seeking clues to general economic trends follow most closely the seasonally adjusted estimates. The "adjustment" corrects factors such as the traditional underestimating of fourth quarter expenditures and the winter slowdown in construction.

And it is this seasonally adjusted report that discloses the small fourth quarter dip that ends a solid two year succession of quarterly increases. Anything can happen by the time fourth quarter actual figures are in, but most economists will accept these preliminary findings as a sign that plant and equipment expenditures are flattening out, and may be even entering on a period of decline.

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Wage Accords Reached on Coast

Two strikes wind up in Northern California as one trade wins a two-year 72½ cent package wage boost

Work was resumed by three unions last week at 23 ready mix plants in California's San Francisco area after a 20-day shutdown that tied up a number of construction projects. At the same time, new wage settlements ranging up to 72½ cents an hour over a two year period were reached with several other West Coast unions.

Return to work at the ready mix plants came after the Northern California Ready Mixed Concrete and Materials Association settled with Local 3 of the operating engineers, Local 389 of the laborers and Local 216 of the teamsters. The walkout that closed the plants was called by the operating engineers, but the three unions had a working agreement that none would return to work until all three had reached a settlement with the association.

• **Terms**—The operating engineers' pact, already ratified by the membership, calls for a 62½ cent package spread over two years. It includes a 25 cent hourly wage hike this year retroactive to June 1, a 2½ cent increase on Sept. 1, 22½ cents more next June, and 2½ cents Jan. 1, 1959. A 10 cent pension contribution starts Jan. 1, 1959. This year's increase brings the pay of union members to $2.92½—still considerably below the $3.30 construction rate paid concrete batch plant operators under the pact with Associated General Contractors.

Laborers won a two-year contract that boosts their pay 18 cents retroactive to Aug. 1 and another 18 cents a year later.

That's the same increase granted by the AGC, although the latter signed a five-year contract calling for an 18 cent boost each year. Laborers at ready mix plants will now make $2.40, compared with $2.50½ paid by the AGC.

Teamsters will get a 22½ cent wage increase retroactive to July 1 and another 22½ cents next July 1. Their health and welfare contribution was increased from $11.60 a month to 10 cents an hour. Dump truck drivers were getting $2.30-$2.63½ and drivers of concrete mixers $2.31½-$2.66½.

As of last week contracts with teamsters and laborers were subject to ratification.

• **Other settlements**—Other pacts just concluded affect 6,000 iron workers and 350 asbestos workers in Northern California and Nevada. Iron workers won a 55 cent package spread over two years and asbestos workers got a 72½ cent boost spread over the same period.

Settlement with the iron workers is a statewide agreement between four California chapters of AGC and the California District Council of the International Association of Bridge, Structural and Ornamental Iron Workers. It calls for an immediate wage boost of 22½ cents with a similar increase next August. A 10 cent employer contribution for pensions goes into effect next August.

First increase gives reinforcing iron workers $3.37½ cents an hour, structural and ornamental iron workers $3.62½, and fence erectors $3.42½. Differential for foremen was upped from 25 cents to 30 cents. In addition, subsistence was boosted from $6.00 to $6.50 a day, and an employer contribution of ½ cent an hour was added for the purposes of apprentice training.

Settlement between the asbestos workers and the Insulating Contractors of Northern California followed a four week strike.

The contract calls for an immediate increase of 27½ cents, 15 cents more on Feb. 1, another 20 cents in August and 7½ cents the following February. Subsistence pay, previously $6.00, will be boosted $1.00 each year and on Feb. 1 2½ cents will be added to the present 10 cent health and welfare contribution.

As a result of the first increase, the scale for asbestos workers becomes $3.55.

Both contracts have gone before union members for ratification.

• **Painters' strike**—Meanwhile, a painters' strike has developed in Louisville, Ky., over a new master contract between Local 118 and the Louisville Painters and Decorators Association, which does the bulk of the painting work and sets the pay pattern for the area.

Principal issues are the union's wage demands—a two-year contract with an annual pay boost of 12½ cents—and its objection to a contractor request that painters switch from brush to roller application. A contractor spokesman said this is the first time the association has attempted to cope with the roller issue. Union's position, as expressed by the local's business agent, is this: "We want a higher rate of pay if we are required to use a roller."

Present minimum hourly pay for painters in the area is $2.90. Out of town work beyond 20 miles carries a scale of $3.20 ($3.55 if more than 50 miles away). Area scale for hazardous work is $3.25.

In East St. Louis, Ill., bricklayers' Local 30 has signed a one year contract that increases vacation pay by 20 cents an hour, making it now 40 cents. Base pay for journeymen remains $3.90.

Also included among the new agreements is one between the Southern Illinois Builders Association and cement finishers' Local 90. Affecting 378 union members, it grants a 40 cent wage increase over a 25 month period—15 cents retroactive to July 1, 12½ cents Feb. 1 and 12½ cents next Aug. 1. A "no work stoppage" clause is included in new grievance procedure provisions.

Bricklayer Leader Decries Veto of Vet Housing Bill

Harry C. Bates, president of the Bricklayers, Masons and Plasterers International Union last week criticized President Eisenhower's pocket veto of the Veterans Home Loan Bill as a "callous indifference" to the housing needs of the American people.

Speaking as chairman of the AFL-CIO Housing Committee, Mr. Bates said the President's attempt to justify his disapproval of the bill on the grounds that continuance of veterans home loans at a 4½% interest rate in rural areas would be "discriminatory" against veterans living outside the area doesn't "hold water." The action, he said, "will deprive thousands of veterans and their families of the chance to buy homes at reasonable cost" and reflects the Administration's "determined opposition to extension of veterans home loans to additional areas and its all-out effort to raise the interest rate for the G.I. homes."

Mr. Bates, along with Chairman William Doherty of the AFL-CIO Veterans Committee, called for Congressional enactment of "an effective and equitable veterans housing program" and said that "veterans home loans at reasonable interest rates are an essential part of the overall housing program."

Lathers Criticize Joint Board

Union asserts Congress did not intend to make the Labor Board an enforcement agency for Joint Board

In a controversy over the role that the National Labor Relations Board is supposed to play in the settlement of jurisdictional disputes, the lathers union contends that such disputes should be handled under the law as written—not, says a union statement, as others might wish it were written.

The lathers have taken the position that the NLRB has no authority to enforce work assignment decisions of the National Joint Board for the Settlement of Jurisdictional Disputes in the Construction Industry. Set up under a 1948 agreement between contractors and construction unions then in the AFL, the Joint Board is the industry's voluntary and internal machinery for resolving craft disputes over work assignments.

According to the lathers, the NLRB has only two alternatives when it receives an unfair labor practice charge stemming from a jurisdictional dispute. (Genesis of such a charge is a union attempt, generally through a strike, to force a contractor to give the disputed work to it instead of to another union.) The two alternatives presented by the Wood, Wire and Metal Lathers International union and its Local 2 are these:

- The NLRB must dismiss the charge and wash its hands of a dispute if all the parties to the dispute are subject to a voluntary method, such as the Joint Board, for settling the dispute.
- If the parties are not subject to the Joint Board, then the NLRB must investigate the dispute and make a work award of its own based on the merits of the dispute. Only then can its enforcement machinery go into action—and that begins with the issuance of an unfair labor practice complaint.

The brief was filed in answer to one submitted by the Joint Board in a case involving a carpenter-lather dispute over acoustical ceiling work in Cleveland (ENR Aug. 22, p. 113). Principal contention of the Joint Board is that Congress intended to encourage voluntary settlement of jurisdictional disputes and, to this end, gave the NLRB the power to compel compliance with Joint Board decisions.

In their brief, the lathers say the Joint Board is asking the NLRB to rewrite the law. They argue that "Congress specifically rejected the idea of any outside agency, such as the Joint Board, making awards of disputed work that would be enforced" by the NLRB. It was not the Congressional intent, they declare, to make the NLRB "a rubber stamp endorsing and enforcing" private awards. The lathers assert, in substance, that if the Joint Board can't get disputing parties to abide by its decisions, then the remedy lies in the courts and not in the NLRB.

To the lathers, the Joint Board and NLRB procedures are mutually exclusive. Each in itself, they assert, is "separate and complete." The Joint Board, however, contends that the two procedures are "parallel alternatives" and proof that either method has failed to settle a dispute "opens the way to an order" from the NLRB to stop engaging in an unfair labor practice. Unless there is an assurance that a union that strikes in violation of the Joint Board procedure can be prosecuted by the NLRB, the Joint Board says, its "entire structure might collapse."

Although the NLRB has intervened in a host of jurisdictional disputes, it has never ruled on its right to enforce a Joint Board decision. And that is the question it now faces in the carpenter-lather dispute.

No Area Pension Plan

Arbitrator rules against western teamster demand

The fast growing Western Conference of Teamsters' pension plan suffered a setback last week, when an impartial arbitrator turned down a teamsters' request that 29 Southern California employers in the rock, sand, gravel and ready mix concrete industry participate in the conference plan.

Winding up a dispute that began in 1955, arbitrator Paul Prasow of the UCLA School of Business Administration ruled in favor of a proposed pension plan submitted by the employer group.

The pension plan, which affects 1,700 truck drivers, is one of the issues that was raised in a three-month strike that began Oct. 3, 1955, against the Southern California Rock Products Association. Although willing to make a pension contribution, the employers refused to come into the area-wide conference plan because they would have no direct control over operation of the plan. When the strike was settled, it was agreed to submit the pension dispute to an impartial arbitrator (ENR Mar. 1, 1956, p. 84).

In turning down participation in the conference plan, Mr. Prasow relied heavily on testimony and evidence produced before the Senate committee currently investigating labor affairs. Despite teamster assurance that the pension fund would not be mismanaged, Mr. Prasow said he did "not feel justified in forcing upon the 29 employers herein a fiduciary relationship which requires the highest trust and confidence to be reposed by one party in the integrity and fidelity of another."

It is felt that the decision will influence other employer groups in the 11 western states covered by the conference to buck the WCT plan and to establish their own autonomous control over pensions for which they pay the entire cost.

The plan approved by Mr. Prasow is one of 12 submitted by the employers. It contains these provisions:

- Employers will contribute to the trust fund an amount equal to 10 cents an hour for each paid hour worked by each teamster employee. This will amount to about $17.30 a month per employee.
- Eligible employees may retire at age 65 with a maximum pension at this time of $85 monthly.
- Through a reciprocal arrangement, employees moving to an employer under another teamster plan, or vice versa, will have contingent rights to benefits under the plan from which he transferred.

The plan will be retroactive to July 1 if agreement can be reached on the reciprocity clause. If that fails, the contribution will go to wages.

New-Era Training

Iron workers to train members in use of new materials and techniques

With an eye to the future, the International Association of Bridge, Structural and Ornamental Iron Workers is setting up a new training program to cope with one of the construction industry's big problems: maintaining an adequate supply of skilled mechanics who can master, handle or install the new products, materials, methods and techniques that continually flow into the industry.

The program was authorized by the union's General Executive Council in June. Its purpose is to train apprentices and journeymen in the specialized skills required by new products and techniques within the union's jurisdiction.

First step, according to the union's general president, John H. Lyons, will be appointment of a permanent committee charged with the responsibility of developing the training program. Part of the committee's task will be to encourage participation by contractors and manufacturers of new products, as well as by all local unions in the international association.

Through the program the union hopes to preserve and protect the job opportunities of its members. At the time the program was authorized, the Executive Council realized that the union can't give its members that protection unless it's able to supply mechanics to perform the specialized work which new products and techniques require.

Need for the program, according to the union, stems from greater use of materials and products previously used to a lesser extent. Generalized examples are industrial-type exterior wall paneling, architectural-type metal curtain walls, self-supporting metal buildings and various non-ferrous architectural metal applications. Result is that manpower demands are greater than the number of men familiar with such work.

Mr. Lyons reports that the union's present thought is to coordinate the new program with the iron workers' apprenticeship program. The new, brief specialized training program, he says, will be compulsory for apprentices and voluntary for journeymen. The union had 3,671 apprentices as of Dec. 31.

Court Outlaws Picketing To Protest Nonunion Help

Union picketing aimed at forcing an employer to discharge nonunion employees has been declared unlawful by the Supreme Court of Arizona.

The decision was viewed as strengthening Arizona's right-to-work law.

Picketing, however peaceful, is illegal if engaged in when the employer-employee relationship between picketers and employer has ceased, the court ruled.

The decision grew out of a 1954 strike of restaurant workers who struck to achieve what the court called unlawful objectives. In terminating their employment, the court said, they stood as "strangers at the gate." This, in turn, permitted the employer to hire nonunion replacements unconditionally on a permanent basis.

When the strikers, as mere strangers, picketed to force the discharge of nonunion workers in favor of the pickets, the court concluded, the picketing became unlawful and a violation of the right-to-work law.

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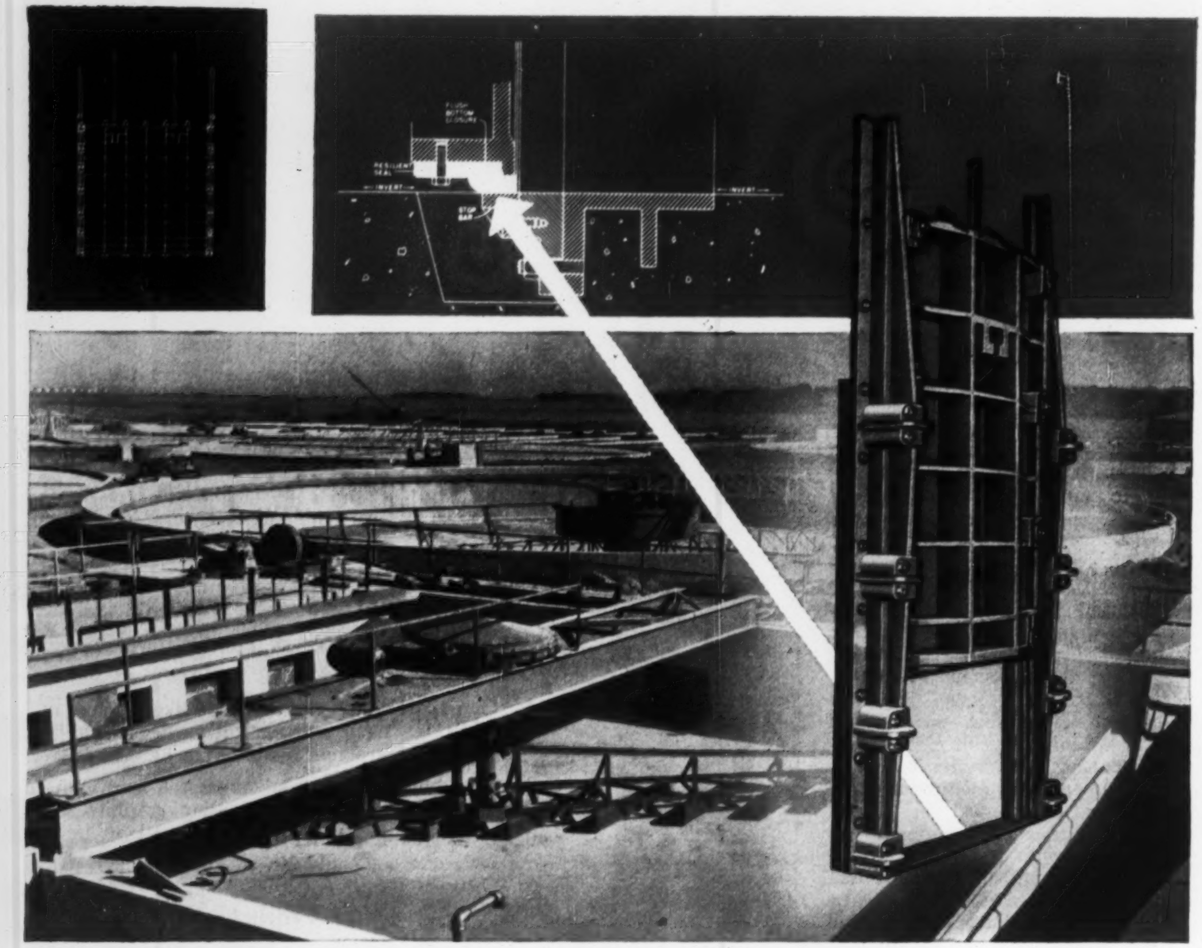

only HY-Q sluice gates
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The unique Rodney Hunt HY-Q® Sluice Gate incorporates a heavy strip of tough, resilient material in the bottom of the gate disc which makes a tight seal against a sill flush with the channel bottom. Silt and debris wash clear each time the gate is opened; cannot pile up and interfere with operation.

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Unions to Protect Jurisdiction

Ohio building trades propose conditional secession from AFL-CIO as state groups continue merger talks

The Ohio Federation of Labor, AFL, has asked that the "traditional rights" of its building trades affiliates be protected if and when it merges with the state CIO.

The request is contained in a "statement of principles" adopted by the federation at its convention in Dayton late last month. It was made after the Ohio State Building and Construction Trades Council had vigorously protested invasion of the building trades' jurisdiction by industrial unions.

Offered in lieu of two anti-AFL-CIO merger resolutions, the statement urges full protection of the jurisdiction of building trades in the state merger.

Under the AFL-CIO constitution, state and central local bodies of the AFL and CIO are required to merge by Dec. 5 of this year. So far, mergers at the state level have been accomplished in 28 states. Biggest stumbling block has been the jurisdictional friction between craft and industrial unions. The building trades claim that production workers, largely in the old CIO unions, are performing an ever increasing amount of construction work in industrial plants. Two AFL-CIO committees have wrestled unsuccessfully with the problem.

The Ohio State Building and Construction Trades Council asserted at the Dayton convention that this invasion of the building trades' jurisdiction threatens its affiliates "with extinction." In one of the most dramatic protests to date against the AFL-CIO's failure to assure the buildings trades the jurisdictional protection they seek, the state council adopted this resolution:

"The Ohio State Building and Construction Trades Council has voted unanimously that we petition the next National Building Trades Department convention that action be taken to withdraw from the merged AFL-CIO until a satisfactory method of settlement of jurisdictional differences are resolved between the IUD (Industrial Union Department headed by Walter Reuther) and the Building Trades Department, and that the Ohio delegates to the next National Building Trades convention present this resolution to the body in session for adoption."

At the Dayton convention, the state council, which represents 87,000 construction workers, did not oppose adoption of the state federation's statement of principles. John Breidenbach, president of the council, warned, however, that the statement does not prevent building tradesmen from going it alone if the jurisdictional problem with industrial unions is not resolved satisfactorily.

The problem was discussed at the special convention of the AFL-CIO Building and Construction Trades Department in Atlantic City, N. J., last month (ENR Aug. 15, p. 179). No definite action was taken.

Jobless Benefits Denied For Association Lockout

In an administrative decision, applicable to but not spawned by the construction industry, the California Department of Employment has ruled that union members locked out by an employers' association during a strike are not eligible for unemployment benefits.

Basis of the ruling is a 1949 State Supreme Court decision that a strike against one employer in an association is a strike against all, if the union has been informed that the employers will negotiate as a unit. Under state law, employees leaving their jobs because of labor disputes cannot collect jobless benefits.

The decision stemmed from a strike of machinists early in July against a few member firms of the California Metal Trades Association. A few days later, the association called for an association-wide lockout; most of the members complied, throwing 8,000 machinists and 1,500 members of non-machinists unions out of work.

A spokesman for the employment department said unemployment benefits would be granted to employees laid off because there was no work to be done in the absence of machinists, but not to employees who refused to cross picket lines.

Labor Asks County Repeal Of Right-to-Work Measure

Organized labor in California is trying to get the Trinity County Board of Supervisors to rescind a right-to-work ordinance recently adopted at the county level by a 4 to 1 vote.

The measure was passed following receipt of petitions signed by 693 persons asking for such an ordinance.

Labor leaders view the ordinance as "very serious" and expect it to be particularly troublesome to unions on the $225,000,000 Trinity River division of the Central Valley Project now underway in Trinity County.

The ordinance permits workers to hold jobs without joining a union. Although the Taft-Hartley Act authorizes use of a union shop clause in labor contracts, its Section 14(b) allows states to ban union membership as a condition of employment.

California is the first state in which right-to-work legislation has been tried at the local level. Ordinances similar to the one in Trinity County have been adopted in the city of Palm Springs and in the counties of Tehama and San Benito. The Palm Springs and San Benito ordinances have been ruled unconstitutional and the one in Tehama County has been held invalid when invoked within incorporated city limits. The state supreme court, however, has not yet ruled on the issue.

Petitions seeking repeal of the Trinity ordinance are being circulated by labor representatives.

Labor Briefs . . .

- **Prevailing wages**—Through efforts of the Akron, Ohio, chapter of AGC and laborers Local 894, for Ohio Highway and Industrial Relations Departments are being forced to hold a rate hearing for the Akron district. It's charged that the state wage rate is lower than the Akron one and works to the disadvantage of local contractors.

- **Subsistence pay**—Construction workers on the $7 million Lucky Mc uranium mill in Central Wyoming are seeking a 25 cent hourly wage increase plus mileage payment or $3 a day subsistence. Utah Development Co. stopped paying mileage from Riverton (50 miles away) when a dormitory and cafeteria were opened at the millsite in June.

- **Right-to-work**—The Idaho Freedom to Work Committee has taken the first step toward placing a right-to-work measure on the Idaho general election ballot next year. A copy of the proposed bill and a petition for initiative have been filed with the secretary of state.

- **Hot cargo**—In an administrative decision last week, NLRB General Counsel Fenton ruled that neither the execution of a contract containing a hot cargo clause nor an appeal to signatory employers to honor the contract violates the Taft-Hartley Act's secondary boycott provisions.

Bids: September 19, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 19th day of September 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON District Engineer, 353 Broadway, Albany, N. Y.						
Albany	FISH 57-17 FIC 57-12	Interstate Route 502 (Albany to Latham) Proj. I-IG-1119(9)	5.52 (8.68) (Acc.)	9" Cem. Conc. Pavt. 2 @ 36'=5.42 Miles; 9" Cem. Conc. Pavt. Var. Width=7.07 Miles; Asph. Conc.=1.51 Miles; Misc. Work=0.20 Mile; 12 Hwy. Sep. Struct. 204.3', 216.0', 184.5' 184.5', 193.1', 138.1', 138.1', 155.4', 155.4', 172.4', 172.8', & 193.1'; 2 RR Sep. St. 181.3, & 181.3'	$625,000 Plans $100	$11,390,000
DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer & Montgomery (Rte. 5)	WSR 57-9	Little Falls-East Creek, S.H. 456—Truck Weigh Station No. 5 Palatine Br.-Fonda, Pt. 2, S.H. 5125—Truck Weigh Station No. 6	0.06	9" Cem. Conc. Pavt.=0.04 Mi. Misc. Work=0.02 Mi.	$220 Plans $10	$4,000
DISTRICT No. 3, WM ROBINSON District Engineer, 353 Washington St., Syracuse, N. Y.						
Onondaga	FIC 57-11P FIRC 57-159P	Interstate Route 505, City of Syracuse: Oswego Blvd. Syracuse-Mattydale, S.H. 54-3; Phoenix-Syracuse, S.H. 5274. Proj. I-IG-463(17)	1.02 (2.16) (Acc.)	Asph. Conc., Ty 2A=3.07 Mi. Misc. Work=0.11 Mi.	$220,000 Plans $50	$3,979,000
Onondaga	FISH 57-18	Interstate Route 505 (Nedrow to Lafayette Sect.), FISH 56-12 (Webb Hollow Road Underpass) Proj. I-397(6)	0.06 (0.39) (Acc.)	9" Cem. Conc. Pavt. 2 @ 24'=0.06 Mi. Graded Grav. Bit. DST=0.39 Mi. Hy. Sep. Reinf. Conc. Rigid Frame 50.9'	$14,000 Plans $10	$265,000
Tompkins (Rte. 38)	R.C. 57-165	Freeville-Groton, S.H. 926	4.47	Asphalt Concrete	$11,000 Plans $10	$190,000
Wayne (Rte. 104A)	FARC 57-155	Red Creek-Fair Haven, S. H. 1185 Proj. F-535(2)	0.64	Asph. Conc.=0.56 Mi.; Misc. Work=0.08 Mi.; Br. 1, Twin Closed Box 23.3'; Br. 2, Twin Closed Box 23.1'	$14,000 Plans $10	$268,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 57-10	Rochester City: Mt. Read Blvd. (Buffalo Road to Maple St.) Proj. U-1093(3)	0.38 (0.16) (Acc.)	Asphalt Concrete, Type 2A	$16,500 Plans $15	$297,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie (Rte. 5)	R.C. 57-164	Lackawanna City-South, S.H. 5071 Lake Shore-Lackawanna City, S.H. 5019	0.59	Demolition	$1,600 Plans $10	$29,000
Erie (Rte. 5)	FAC 57-4	City of Lackawanna; Arterial Route, Fuhrmann Blvd-Hamburg Turnpike Viaduct (Fox St.-Ridge Rd.) Demolition Cont. #2. Proj. U-750(10)	0.34	Demolition	$7,000 Plans $10	$133,000
Niagara (Rte. 384, 265)	T.C. 57-6	City of North Tonawanda: River Road Arterial (FAC 56-12)	2.06	Traffic Signal System	$1,900 Plans $10	$34,000
DISTRICT No. 6, J. H. THOMAS, District Engineer, 30 West Main St., Hornell, N. Y.						
Schuyler	FASS 57-12	Montour Falls-Townsend (C.R. No. 398) Proj. S-446(1)	1.60	Top Crse. Bit. Macadam, Type I	$16,000 Plans $10	$293,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
St. Lawrence (Rte. 11)	FARC 57-156	County Line-Gouverneur, S.H. 5287 Proj. F-476(7)	4.42	Asphalt Concrete	$47,000 Plans $15	$860,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	PIP 57-2	Palisades Interstate Parkway Sect. 2 (Rte. 303-Rte. 59A)	5.19 (4.24) (Acc.)	Cem. Conc. Pavt. 2 @ 24'=8.64 Mi. Asph. Conc.=0.58 Mi. TC Graded Grav.=0.21 Mi.	$150,000 Plans $50	$2,794,000
Rockland (Rte. 17)	FARC 57-157	New Jersey State Line-Ramapo, S.H. 1844 Proj. F-405(7)	1.54	Asphalt Concrete	$22,000 Plans $10	$414,000
DISTRICT No. 9, J. C. FEDERICK, District Engineer, 71 Frederick St., Binghamton, N. Y.						
Otsego (Rte. 7)	FARC 57-121	Wells Bridge-Otego, S.H. 5153 Proj. F-628(6)	3.53	Asphalt Concrete Widen Exist. RC Beam Br. 30' Widen Exist. RC Beam Br. 36'	$37,000 Plans $15	$670,000
Otsego	C.R. 57-3	Milford Center-Milford, S.H. 674	....	Removal of Human Remains	$125 Plans $10	$2,400
DISTRICT No. 10, M. E. GOUL, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y.						
Nassau (Rte. 106)	FARC 57-167	Jericho-Oyster Bay, S.H. 9021 Proj. US-500(1)	1.77	Asphalt Conc.=1.72 Mi. Misc. Work=0.05 Mi.	$30,000 Plans $15	$526,000
Suffolk (Rte. 110)	FARC 57-161	Huntington-Amityville, Pt. 1, S.H. 794 Proj. U-297(4)	2.46	Asphalt Concrete=2.30 Mi. Misc. Work=0.16 Mi.	$82,000 Plans $25	$1,496,000
Suffolk (Rte. 27A)	FERC 57-160	Bayshore-Brookhaven Town Line, S.H. 5301 (Montauk Highway) Proj. ER-42(1)	0.12	Asphalt Concrete=0.03 Mi.; Misc. Work=0.09 Mi. 8'x4' Closed Box Culvert	$3,500 Plans $10	$62,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds.

Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Prequalification Date: September 19, 1957.

Board of Education
Bureau of Construction

Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT

The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, L. I. C., New York, will receive applications for prequalification of bidders from Contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

General Construction
Plumbing & Drainage
Heating & Ventilating
Electrical Work & Lighting
Fixtures for the new addition
to Public School 201, Queens
155th Street and 65th Avenue.,
Shop equipment for Junior High
School 52, Manhattan. Broadway
and Academy Street.,

Prequalification application forms will have to be secured and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, L. I. C., New York.

Bids when advertised will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, September 19, 1957.

WILLIAM H. CORREALE
Superintendent of School Buildings,
Dated: September 3, 1957.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4963) will be received at Ephrata, Washington until October 9, 1957, for furnishing labor and materials for earthwork, concrete lining, and structures, Block 20 laterals, wasteways and drains, Wahluke Branch Canal Laterals, Columbia Basin Project, Washington. Location west of Mesa, Washington. Principal items are 917,000 cu. yds. excavation; 7,200 cu. yds. concrete; 24,700 lin. ft. concrete pipe; 16 units outdoor pumping units; various gates and metalwork; and other work. Completion time 500 days. For particulars, address Bureau of Reclamation, P. O. Box 368, Ephrata, Washington; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 24, 1957

City of Long Beach, New York Installation of Clarification Equipment at the Magnolia Boulevard Water Treatment Plant

INSTALLATION OF CLARIFICATION EQUIPMENT — CONTRACT 1
ELECTRICAL — CONTRACT 2

NOTICE TO BIDDERS

1. Sealed proposals for performing all work in connection with the Installation of Clarification Equipment and Electrical Work, Contracts 1 and 2 respectively, are hereby invited and will be received by the City Manager until 10:00 o'clock, A.M. Eastern Daylight Saving Time, on Tuesday, September 24th, 1957, in the office of the City Manager, City Hall, Long Beach, New York, and there publicly opened and read immediately thereafter.
2. The work will consist of providing all labor, materials, equipment and incidentals required for the Installation of Clarification Equipment at the Magnolia Boulevard Water Treatment Plant.
3. Drawings, specifications, bidding and contract documents may be examined at the office of the City Manager at City Hall and obtained from the latter at a deposit of $5.00 per set. Full refund will be made to actual bidders for return of each set in good condition within two weeks after closing date for receipt of bids.
4. All bids must be accompanied by a Certified Check or acceptable Bidder's Bond in the amount of at least ten (10%) percent of the amount of the Bid, made payable to the City Treasurer, City of Long Beach, New York. Said checks will be returned to all except the two lowest bidders, not later than ten days after the opening of bids.
5. The Owner reserves the right to reject any or all bids, to waive any informality in bids received and to accept that bid which in its judgment best serves the interests of the City.

CITY OF LONG BEACH, NEW YORK
By MAURICE J. FLEISCHMAN
City Manager

Dated: September 3rd, 1957.

Bids: September 30, 1957.

For Construction of Operators' Housing on Barnhart Island Park Superintendent's Residence, Massena Town Beach and Information Center Near Massena St. Lawrence County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
SPECIFICATIONS NO. PA-5-11027
ST. LAWRENCE CONTRACT NO. SP1

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Operators' housing on Barnhart Island, Park Superintendent's residence, Massena Town Beach and Information Center near Massena, St. Lawrence County, New York until 10:30 A.M. Eastern Daylight Saving Time on the 30th day of September at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

The principal work consists of the construction of seven (7) houses, beach facilities consisting of bathhouse and refreshment stand, and an information building at the entrance of the St. Lawrence Project together with accessory water, sewerage and electrical power facilities, roads, walks and driveways.

All work shall be completed on or before July 1, 1958.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty-five ($25.00) dollars per initial set and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal forms for the work will be on file in the Authority's office, and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: October 3, 1957.

City of Binghamton Water Filtration Project

GENERAL CONSTRUCTION —CONTRACT I
PLUMBING —CONTRACT II
HEATING & VENTILATING —CONTRACT III
ELECTRICAL —CONTRACT IV

NOTICE TO BIDDERS

1. Sealed proposals for performing all work in connection with the General Construction, Plumbing, Heating & Ventilating, and Electrical work, Contracts I, II, III and IV, respectively, are hereby invited and will be received by the Board of Contract and Supply until 10:30 A. M. o'clock, Eastern Standard Time, on October 30, 1957 in the Council Chambers, City Hall, Binghamton, New York and there publicly opened and read immediately thereafter. Contractors may submit proposals for any one or more contracts.
2. The work will consist of providing all labor, materials, equipment and incidentals and performing all operations required for the construction, complete and ready for municipal operation, of the Water Filtration Project including all General Construction, Plumbing, Heating & Ventilating, and Electrical Work.
3. Drawings, specifications, bidding and contract documents may be examined at the offices of the Consulting Engineers, Leonard S. Wegman Co., Grand Central Terminal Building, New York 17, N. Y. and Alexander Potter Associates, 50 Church Street, New York 7, N. Y., or at the office of the City Engineer at City Hall and obtained from the latter at a deposit of $75.00 per set. Full refund will be made to actual Bidders for return of one set in good condition and a 50% refund for return of each additional set in good condition returned within two weeks after closing date for receipt of bids. Single additional copies of any one drawing may be obtained upon payment of one (1) dollar per print.
4. Each bid must be accompanied by a Bid Security in the form of an Acceptable Bidder's Bond, or a certified check payable at sight to the Treasurer of the City of Binghamton in an amount not less than Five Per Cent (5%) of the amount of the total bid. Such Bid Security will be returned to all except the three lowest formal Bidders within five (5) days after the formal opening of bids, and the remaining Bid Securities will be returned within two (2) days after the Owner and the accepted Bidder have executed the contract, or if no contract has been executed, within thirty (30) days after the date of opening of bids, upon demand of Bidder at any time thereafter, so long as he has not been notified of acceptance of his bid. If the Bidder to whom the contract is awarded does not execute the contract and furnish the required bond within fifteen (15) days after receipt of notice of award the aforesaid Bid Security shall be paid to the City Treasurer as liquidated damages.

OFFICIAL PROPOSALS

Bids: November 6, 1957.

Convention-Exhibit Building — Superstructure Civic Center Commission City of Detroit, Michigan Contract MH-52-C

Sealed Proposals for the construction of the Superstructure of the Convention-Exhibit Building, located in the Civic Center of Detroit, addressed to the Office of the City Engineer, 528 City-County Building, Detroit 26, Michigan, will be received until 2:00 P. M., E.S.T., November 6, 1957, and then at such place and time be publicly opened and read aloud.

The work includes the principal Superstructure architectural trades for the entire project and also minor mechanical and electrical work for the initial phases of construction of the project.

The project encompasses: Exhibit Building consisting of approximately 1,012,000 sq. ft., of Exhibit Areas, meeting rooms, service areas, etc., and approximately 100,000 sq. ft., of Parking Garage, in each of two levels below main exhibit level, also a three-lane circular concrete ramp leading to roof parking area of approximately 350,000 sq. ft.; Convention Hall 318' in diameter adjoining Exhibit Building, and a 2 level underground Parking Garage, approximately 90,000 sq. ft. each level under the Convention Hall entrance plaza.

The Bidding Documents may be examined during working hours at the Offices of: Giffels & Vallet, Inc., L. Rossetti, Associated Engineers and Architects, 1000 Marquette Building, Detroit 26, Michigan; The Detroit Builders and Traders Exchange; and the F. W. Dodge Corporation of Detroit.

Complete sets of the Bidding Documents may be obtained from the Engineers and Architects, on and after September 16, 1957, upon a deposit of $190.00 per set. Deposits will be refunded upon the return of the Documents in good condition within ten days after the date for the opening of the bids. No further breakdown of the Bidding Documents will be made.

Each Proposal must be accompanied by a certified check, bank draft or a satisfactory bid bond in an amount of not less than 5% of the total bid price, as a guarantee and security for the acceptance of the Contract.

All checks shall be payable to the Treasurer, City of Detroit.

No Proposal once submitted may be withdrawn for at least 45 days after the actual opening of the bids. The City of Detroit reserves the right to waive any irregularity in any bid, or to reject any or all bids should it be deemed for its best interest to do so.

City of Detroit
FRANK G. SCHEMANSKE
President, Civic Center Commission

Prequalification Date: Septembebr 19, 1957.

Board of Education Bureau of Construction

Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT

The Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, L. I. C., New York, will receive application for prequalification of bidders from Contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

Shop Equipment for Junior High School 211, Brooklyn, Avenues "J" and "K" and East 100th Street.

Prequalification application forms will have to be secured and must be submitted to the Superintendent of School Buildings, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, L. I. C., New York.

Bids when advertised will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, September 19, 1957.

WILLIAM H. CORREALE
Superintendent of School Buildings,
Design and Construction

Dated: September 3, 1957.

Bids: September 19, 1957

Plating Lock Chamber & Portions of Lower Approach Walls

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Canal Law and Highway Law, sealed proposals will be received, until 10:30 A.M., D.S.T., on September 19, 1957 by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

Contract M 57-16 for Plating Lock Chamber and Portions of Lower Approach Walls with W. I. Plates, Installing New Buffer Beam and Buffer Beam Recesses & Misc. Repairs at Lock #9, Erie Canal, Town of Glenville, Schenectady County, New York. Engineer's Estimate for Contract M 57-16 is $288,000.00.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, Gov. A. E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract M 57-16 may be examined and obtained at the office of Mr. G. L. Nickerson, District Engineer, 353 Broadway, Albany 1, New York.

The deposit for Plans and Proposal Forms for Contract M 57-16 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for M 57-16 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Eact proposal must be accompanied by draft or certificate check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $15,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Canal Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved o reject any and all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 17, 1957.

Sinking Wells and Pumping Groundwater—Contract 463

SEALED BIDS will be received by the Board of Water Supply at its offices, thirteenth floor, 120 Wall Street, New York City until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time) on Tuesday, September 17, 1957, for Contract 463, for sinking and developing wells and pumping groundwater at the site of the proposed Cannonsville dam, in the Town of Deposit, Delaware County, New York. The principal features of the work to be done under this contract are the sinking of three or more pumping wells through the overburden and into bed rock, developing these wells, and equipping them with deep well turbine type pumps and discharge measuring devices; the sinking of a number of observation wells to various depths in the overburden and the developing of these wells; the measuring and recording of groundwater elevations in the pumping and observation wells, and controlled pumping from the pumping wells for such continuous periods as ordered, all as set forth in the specifications.

Pamphlets of the contract containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: September 24, 1957

For the Construction of the Plattsburgh and Kents Falls Substations Near Plattsburgh, Clinton County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
SPECIFICATION NO. PA-6-40
CONTRACT NO. T3

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of the Plattsburgh Substation and the Kents Falls Substation, both near Plattsburgh, Clinton County, New York, until 10:30 A.M. Eastern Daylight Savings Time on the 24th day of September, 1957, at the Authority's office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

The work includes but is not limited to the installation of the following Authority furnished equipment consisting of structural steel members for the Substations, transformers, power circuit breakers, disconnecting switches, lightning arresters, carrier current equipment, instrument transformers, insulator assemblies and bus supports, metalclad switchgear, motor control center, static capacitors, control boards and appurtenances, control battery and appurtenances and an emergency generator set.

The work also includes but is not limited to the furnishing and installation of all foundations required by the work of the contract, the complete landscaping of the substation areas at Plattsburgh and Kents Falls, and the furnishing and installation of a one story brick and concrete control house at Plattsburgh Substation, all in accordance with the requirement of the Specifications.

The work shall be completed on or before September 1, 1958.

Plans, Specifications and Proposal Forms may be obtained only from the Power Authority of the State of New York, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty-Five ($25.00) dollars for initial set of Contract Documents and Fifteen ($15.00) dollars for each additional set, no part of which will be refunded. Two sets must be returned with each bid.

Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, for the inspection by prospective bidders.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than twenty (20) percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: September 19, 1957

Tuscarora River Bank Protection

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Building Law and Highway Law, sealed proposals will be received until 10:30 A.M., D.S.T., on September 19, 1957 by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, the Governor Alfred E. Smith State Office Building, Albany, New York, for:

Contract FC 57-3 for Tuscarora River Bank Protection, Addison Flood Control Project, Addison, Steuben County, New York. Engineer's Estimate for Contract FC 57-3 is $21,100.00.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, Gov. A. E. Smith State Office Bldg., Albany, New York.
(b) Department of Public Works, 270 Broadway, New York City, New York.
(c) In addition to the above mentioned offices, plans, maps and specifications for Contract FC 57-3 may be examined and obtained at the office of Mr. James H. Thomas, District Engineer, 30 West Main Street, Hornell, New York.

The deposit for Plans and Proposal Forms for Contract FC 57-3 is $10.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Proposals for FC 57-3 must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" in the amount of $1,100.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Building Law and to the Highway Law as set forth in "Instructions to Bidders" in the contract specifications.

The right is reserved to reject any and all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: October 24, 1957

Advertisement Notice to Contractors Construction of Sludge Digestion Units Hiawatha Treatment Plant Metropolitan Syracuse Treatment Plant District Onondaga County, New York

Separate sealed bids for the construction of the Sludge Digestion Units, Metropolitan Syracuse Treatment Plant District, will be received for the Onondaga Public Works Commission by the County Purchasing Agent, County Office Building, 600 South State Street, Syracuse, New York, until 2:00 P.M., Eastern Daylight Saving Time, October 24, 1957, and there at said office publicly opened and read aloud. Bids will be received for:

Contract No. 2—General Construction
Contract No. 3—Heating and Ventilating
Contract No. 4—Electrical Work
Contract No. 5—Plumbing

These Contracts are for the first major stage of construction of a 50 mgd Chemical Precipitation Sewage Treatment Plant, and provide for the construction of three primary sludge digestion tanks and one secondary sludge digestion tank, each 100 feet in diameter and approximately 30 feet high; a three-story reinforced concrete frame central control house of approximately 80,000 cubic feet; and all necessary equipment and facilities pertinent thereto. All four tanks will be of prestressed concrete construction insulated and faced with tile. Alternate bids will be invited on fixed concrete or floating covers for the primary tanks, and on related process equipment and piping. The secondary tank will be equipped with a floating gas dome. All structures will be supported on raft foundations.

Bidders will be required to bid on all items comprising the Base Bid for the 4-tanks and control house and on all items comprising a Reduced Scope Bid for 2-tanks and control house. The Owner reserves the right to elect, after receipt of bids, to award contracts for the construction of either the work covered in the Base Bid or the work covered in the Reduced Scope Bid.

Copies of the Information for Bidders and all Contract Documents, including separately bound Drawings, may be obtained only from the Onondaga County Purchasing Agent upon deposit of fifty dollars ($50.00) per set. Any bidder submitting a sealed bid, upon returning the drawings in good condition within thirty days (30) days of the award of the Contract or rejection of the bid, will be refunded the full amount of his deposit. Any non-bidder, upon similarly returning full sets of Contract Documents and plans, will be refunded forty dollars ($40.00) per set.

Copies of the above described Contract Documents may be examined at no expense at the office of the Purchasing Agent; at the office of the Onondaga Public Works Commission, County Office Building, 600 South State Street, Syracuse 2, New York; at the office of O'Brien & Gere, Consulting Engineers, 400 East Genesee Street, Syracuse 2, New York; or at the office of the Syracuse Builders Exchange, 1045 James Street, Syracuse 3, New York.

The right is reserved to waive any informalities in the bids and to reject any or all bids.

ONONDAGA COUNTY, NEW YORK
By: Robert W. Sollinger,
County Purchasing Agent
Dated: September 12, 1957

Bids: October 3, 1957

City of Alexandria, Virginia Sanitation Authority Landscaping—Contract No. 16

Sealed proposals will be received by the City of Alexandria, Virginia, Sanitation Authority at the office of the Authority, 835 South Payne Street, Alexandria, Virginia, until 3:00 o'clock, P.M., Eastern Standard Time, Thursday, October 3, 1957, at which time they will be publicly opened and read aloud, and a Contract will be awarded as soon therefater as practicable for landscaping at its Sewage Treatment Plant and Pumping Stations.

The Instructions to Bidders, Proposal, Agreement, Specifications, Plans and Form of Performance Bond may be examined at the office of the Authority, 835 South Payne Street, Alexandria, Virginia. Copies of these Contract Documents may be obtained upon the deposit of $10.00 for each set, to be refunded upon return of such set in good condition within 10 days after opening of proposals.

Each proposal must be accompanied by a bid bond or a certified check on a solvent bank or trust company, made payable to the City of Alexandria, Virginia, Sanitation Authority in the amount of five per cent (5%) of the total bid, as assurance that the bid is made in good faith.

The Authority reserves the right to waive any informalities in or to reject any or all bids and to accept the bid which it deems most favorable to the interest of the Authority after all bids have been examined and canvassed.

CITY OF ALEXANDRIA, VIRGINIA,
SANITATION AUTHORITY
By: James J. Corbalis, Jr.
Engineer-Director

Dated: September 3, 1957
Alexandria, Virginia

Bids: October 9, 1957

Construction of Sanitary Sewers

Sealed bids will be received until 11:00 A.M., EST, on October 9, 1957, in the office of the City Commission of Fort Lauderdale, Florida, for the construction of sanitary sewers in Area "D" consisting of approximately 28,500 linear feet of gravity sewers, 27,000 linear feet of air and force mains, 5 pneumatic ejector lift stations and appurtenances. This contract to be known as "Contract B", Improvement 1005.

Bidding blanks may be obtained from the office of the City Engineer. Plans, specifications, and contract documents are on file in the office of the City Engineer.

A deposit of $40.00 for plans and specifications, and of $25.00 for each additional set of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check or bank officer's check, for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the bidder. This check shall be retained by the payee as liquidated damages should the bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the proposal, in the event the proposal of the bidder is accepted.

The City Commission reserves the right to reject any or all bids.

W. J. Veeder
City Manager

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

Bids: September 26, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 26th day of September 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, N. Y.

County	Contract No.	Name
Essex	Chap. 310, Laws 1957(3)	Little Whiteface Ski Center (Trails)

Miles	Type	Deposit	Estimated Cost of Work
1.88	Clearing and Grubbing, Seeding, Drainage and Grading	$2,500 Plans $10	$14,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Bids: September 19, 1957

Construction of Barnhart Island Beach Grading

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR
SPECIFICATIONS NO. PA-5-11031,
ST. LAWRENCE CONTRACT NO. 39

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Barnhart Island Beach Grading, near Massena, St. Lawrence County, New York, until 10:30 A.M., Eastern Daylight Saving Time on the 19th day of September, 1957, at the Authority's office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are estimated to be:

74,000 cubic yards of excavation
52,000 cubic yards embankment
26,000 cubic yards sand fill

All work shall be completed on or before June 15, 1958.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: September 19, 1957

Power Authority of The State of New York Advertisement for Proposals

FOR CONSTRUCTION OF
WILSON ROAD DIKE,
WILDLIFE REFUGE DIKES
AND
NEW WILSON HILL ROADS
ST. LAWRENCE COUNTY, NEW YORK
SPECIFICATIONS NO. PA-5-11032
ST. LAWRENCE CONTRACT NO. 40

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for Construction of Wilson Road Dike, Wildlife Refuge Dikes and New Wilson Hill Roads, St. Lawrence County, New York, until 2:30 P.M. Eastern Daylight Saving Time on the 19th day of September, 1957, at the Authority's office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The estimated quantities of the principal items of work are:

Excavation, unclassified	98,000 cu. yds.
Constructing compacted embankment for dikes	23,500 cu. yds.
Compacted embankment for roadway	58,000 cu. yds.
Constructing uncompacted embankment for dikes	93,500 cu. yds.
Crushed rock or gravel blanket under riprap	1,000 cu. yds.
Riprap	2,000 cu. yds.
Gravel and boulder blanket	5,000 cu. yds.
Foundation course gravel	20,800 cu. yds.
Gravel base course	4,600 cu. yds.
Bituminous macadam	3,500 cu. yds.
Bituminous material	82,600 gals.
Corrugated metal culvert pipe 18, 24, 36 and 42 inch	1,264 lin. ft.
Topsoiling	3.5 acres
Seeding	30 acres

All of the construction work shall be completed on or before June 1, 1958.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the 18th floor, the Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and The Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto, 2, Ontario, and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the maximum price bid for any bid schedule.

The right is reserved to make award on any one or more of the above schedules, separately or in combination, as fully described in the Proposal, and to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-5-11032

EMPLOYMENT OPPORTUNITIES

NATIONAL COVERAGE

The Advertisements in this section include all employment opportunities—executive, management, technical selling, office, skilled, manual, etc.

Positions Vacant
Positions Wanted
Part Time Work

Civil Service Opportunities . . .
Selling Opportunities Wanted
Selling Opportunities Offered

Employment Agencies
Employment Services
Labor Bureaus

---RATES---

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Send NEW ADS or inquiries to Classified Adv Div of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36, N. Y. Sept. 26th Issue Closes Sept. 16th.

HIGHWAY & BRIDGE
ENGINEERS

Well established Consulting Engineer has immediate openings for engineers experienced in Highway and Bridge design and construction. Permanent positions. Liberal Employee benefits. Salaries commensurate with education and experience. Send complete resume including salary requirements and availability.

WILLIAM H. McFARLAND
ENGINEER
333 Front Street Binghamton, New York

ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3228, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

PROCESS ENGINEERS

McKee has permanent opportunities for Chemical Engineers experienced in process design for Petroleum and Chemical Plants.

Send detailed resume to
G. VICTOR HOPKINS

ARTHUR G. McKEE & Co.
2300 Chester Ave., Cleveland 1, Ohio

REPLIES (Box No.): Address to office nearest you c/o This publication Classified Adv. Div.
NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Gunite Superintendent—Wanted Immediately. Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

Engineer-Gunite, wanted immediately, must know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

Beginning Civil Engineer—Recent graduate. Mount Clemens, Michigan. Near Lake St. Clair. 20 miles Northeast of Detroit. Annual salary $5,122-$5,902. P-5509, Engineering News-Record.

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and references in first letter requested. P-5889, Engineering News-Record.

Northern New Jersey Construction Co. has an opening in its Estimating Department. Must have previous experience in estimating sewer lines, earth moving, and road work. Send resume salary requirements. P-5818, Engineering News-Record.

Inspectors—Concrete, Soils & Asphalt. Field, Lab., & Plant. Also Material Engineer & Party Chiefs. Overseas Airbase. Mild Climate. P-6033, Engineering News-Record.

Estimators—General Construction. Arch., Struct. & Site-Civil. Quantity take-off & pricing. All replies confidential. Write or call Mr. Levy, Builders Estimating Service, 120 Greenwich St., N. Y. 6. REctor 2-4187.

Sanitary Engineers and designers. Permanent positions. Southern Connecticut. Interesting work. Send resume of experience to P-6039, Engineering News-Record.

Professional Land Surveyor—licensed, Bergen County, New Jersey. Work with established firm. Opportunity for partnership interest. Prefer man with five or more years' experience in road or building field. P-6041, Engineering News-Record.

Wanted Sales Engineer—America's leading manufacturer of metal building products, including deck, wall and floor panels, windows and doors, seeks sales-minded engineers or equivalent experience in the construction field. Men selected will be trained and sent out to do field promotional work with architects and engineers before assignment to a regional sales office. Send resume to: Personnel Director, Fenestra Inc., 2250 East Grand Blvd., Detroit 11, Michigan.

Excellent opportunity with small Engineering Firm in Middle West for Graduate Engineer capable of doing Structural Design, with or without experience. Send age, resume of education and experience, also references and salary expected, time available. P-6000, Engineering News-Record.

Senior Cost Engineer familiar with the Uniform System of Accounts for Electric Utilities. Duties will consist of analyzing completed major construction projects for an Electric Utility. Experience with the Federal Power Commission or a State Public Service Commission would be desirable. Some experience with the Property Record Department of any Electric Utility would also be an asset. Indianapolis Power and Light Company, Employment Department, 1230 West Morris St., Indianapolis, Indiana.

POSITIONS VACANT

Assistant Professor in Civil Engineering for courses in mechanics and structures. Opportunity for research and summer work. Also opening for an instructor. Location Vermont. P-6082, Engineering News-Record.

Nationally known southern engineering firm, has opening potential for Chief Engineer. Graduate Engineer, age 45-55, experienced in engineering organization and administration, with thorough knowledge and experience in industrial, commercial and institutional design and construction work. Give detailed historical and professional records, availability and salary requirements. All inquiries confidential. P-6067, Engineering News-Record.

Wanted by New Mexico General Contractor! Experienced estimator capable of eventually assuming Chief Estimator's duties. College Education preferred but not required. P-6071, Engineering News-Record.

Wanted—Structural Designers in office of consulting engineers in New York City. Graduates of recognized engineering schools with experience in design of steel and concrete structures, preferably tunnels, subways, bridges, etc. Forward full data and salary requirements, P-6050, Engineering News-Record.

Wanted—Engineer experienced in design of Water Filtration Plants. State experience, education, salary requirements and when can report. P-6054, Engineering News-Record.

Assistant Expressway Engineer—$9496-11,-427 BCE & eligible for registration. Eight years experience in municipal projects, four in responsible supervisory or administrative capacity. Apply Milwaukee County Civil Service Commission, 206 Court House, Milw. 3, Wis., before Oct. 3, 1957.

2 Soils and Foundation Engineers wanted. Advanced degree and experience in directing boring operations, planning testing work, evaluating results and developing foundation design for buildings, bridges and highways on professional basis required. Also persons with less qualifications to perform duties of field and lab technicians in soils, concrete and bituminous construction needed. Permanent, interesting work. Many benefits. Testing Service Corporation, 146 W. Home Ave., Villa Park, Ill.

Payment Estimate Engineer: Highway Construction experience of at least five years. Specific emphasis is placed on maintenance of records, preparation of payment estimates, change orders and extra work orders. Starting salary $7,500.00. Chicago location. Please write fully and in confidence. P-6079, Engineering News-Record.

Wanted Cost Engr., Supt., age 25 to 35 for permanent position with small fast growing Constr. Co. Gulf Coast area. Experience in heavy constr. essential. Send resume, ref. & salary required. P-6078, Engineering News-Record.

Established heavy contractor, water mains, sewers, treatment plants in New York State, has opening for alert younger engineer with proven background in field and office, for responsible charge of take off, purchasing, expediting, liaison etc. in main office. In return for interest, sound experience, performance, hard work & hustle we offer only well compensated opportunity to advance with growing organization. P-5918, Engineering News-Record.

POSITIONS WANTED

Highway Engineer, P.E., 25 yrs. excellent highway and bridge experience with State and private industry desires to make valuable contribution to Highway Program for N. Y. area Consultant. PW-5908, Engineering News-Record.

Construction Superintendent, 34, college graduate, 12 years experience in all phases construction including engineering, purchasing and estimating. PW-5913, Engineering News-Record.

Gunite man experienced in concrete repairs and pressure grouting. PW-5927, Engineering News-Record.

Bricklayer Foreman 27 years experience in industrial, commercial and residential construction. Preference, desire position in New Jersey area. PW-5998, Engineering News-Record.

Junior Construction Executive—8 years sound experience estimating and project manager. All types building construction seek position with future advancement. PW-5995, Engineering News-Record.

(Continued on page 160)

ENGINEERS

Civil Structural Hydraulic

Highways, Flood Control and Navigation, Industrial and Institutional Buildings, Sewage Treatment and Water Works. Design and Reports.

Other excellent opportunities in Mechanical and Electrical Engineering with Consulting Firm. Location Middle West.

Send resume of education and experience with salary requirements to:

P-5582, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

DEPUTY RESIDENT ENGINEER

For a $40 million rockfill and concrete dam in Iraq. Two-year contract; approximately 3-year completion schedule. Family housing at site, but no local educational facilities for children. Fill type dam construction experience required—preferably rockfill. Must be fully capable of assuming duties of Resident Engineer as required. Position is available immediately. Excellent salary. Please send complete personal and experience record to Hugo O. Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

Structural Designers
Structural Draftsmen

HIGHWAY BRIDGE EXPERIENCE PREFERRED
ALSO RECENT GRADUATES

Highway Designers

SENIORS AND INTERMEDIATE

PERMANENT POSITION

BROWN & BLAUVELT
Consulting Engineers
44 COOPER ST., WOODBURY, NEW JERSEY

CIVIL ENGINEER

With prestressed concrete design experience wanted by growing company able to offer a real opportunity to the right man. Should be familiar with production methods and construction practices. Unusual opportunity. Open on age and salary. All replies confidential. Interviews will be held in your city. Please send us information about your education, experience and present salary. Write

P-5957, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

AREA ENGINEER
(CIVIL—HIGHWAYS)
FOREIGN EMPLOYMENT

U. S. Consultant requires services of broadly qualified highway engineer 15-25 years experience in design, maintenance and construction to join established group of American engineers engaged on an extensive highway program in a Near East Country. Living conditions good. Liberal salary and living allowances; transportation of family plus other attractive allowances and benefits. Send detailed personal record. Applicants' confidence will be respected.

P-5779—Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

HIGHWAY ENGINEERS
SURVEY — DESIGN — STRUCTURAL

Offices

South Bend, Ind. East Lansing, Mich. Wheeling, Ill.

Benefits

Company pays Hospital Insurance, including dependents, vacations, Profit-Sharing-Retirement Plan. Low Personnel turnover. Salary advancement periodically with your advancement in ability.

CHAS. W. COLE & SON
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Highway & Bridge Engineers
Designers & Draftsmen

Career opportunities for men interested in professional recognition.
Excellent working conditions and employee benefits including liberal retirement program.
Openings in Pennsylvania, Maryland, Mississippi, Ohio & West Virginia.

Air Mail Resume to R. L. SHAW, *Personnel Director*

MICHAEL BAKER, Jr., INC.
BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

JOB OPPORTUNITY

EXPERIENCED EARTH MOVING EQUIPMENT SERVICE MANAGER.
UNDER 38 YEARS OF AGE.
MUST BE ABLE TO HANDLE SERVICE MANAGEMENT PROBLEMS OF LARGE SCALE OPERATION.
ONE OF WORLD'S LARGEST HEAVY EARTH MOVING EQUIPMENT DEALERS. IDEALLY LOCATED IN WORLD'S FINEST CLIMATE.
COMPANY BENEFITS AND PROFIT SHARING PLAN.—SALARY OPEN.

SEND QUALIFICATIONS AND PHOTO TO

P-6083 Engineering News-Record, 1125 W. 6th St., Los Angeles, Calif.

ARCHITECTURAL ENGINEER

Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.

Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.

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P-8222, Engineering News-Record
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(Continued from page 158)

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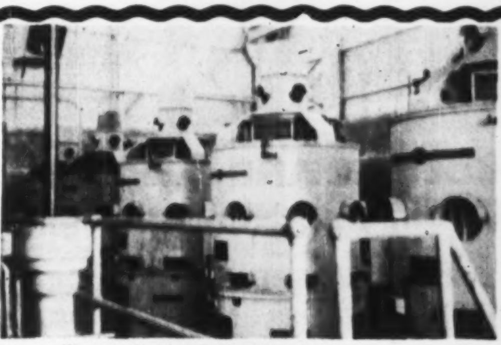

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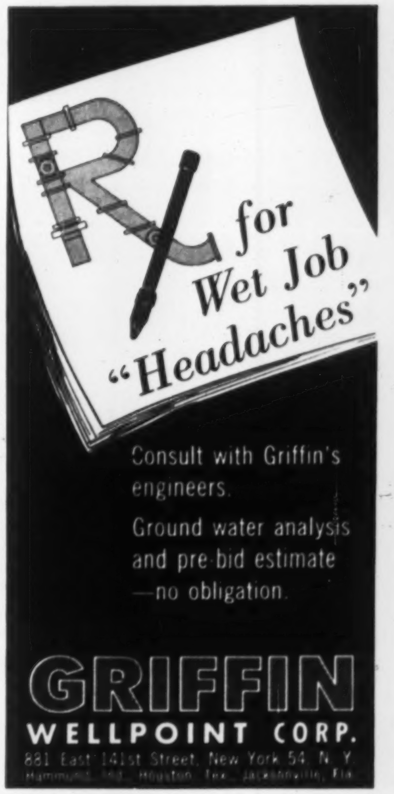

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Editorials

Tollroads Come Into the Net

The Bureau of Public Roads made a sensible move when it decided that some 2,100 miles of the nation's tollroads should be included in the National System of Interstate and Defense Highways (ENR Aug. 29, p. 23). The tollroads so included all lie along or close to routes selected for inclusion in the interstate system. All have been built or are being built to standards comparable to those set up for that system. If the interstate system is to be completed in the manner prescribed in the Highway Act of 1956, the alternative was to construct free roads roughly parallel to those tollroads. In most instances, these would have been unnecessary and very costly duplication. As a result of the BPR decision, the mileage that must be built to complete the interstate network has been cut by 2,102 miles.

Inclusion of this mileage of tollroads in the interstate system will not change the toll status of the affected sections. Tolls still will be collected on them until Congress acts to confirm the transfer.

Still open is the question of payment for the tollroad sections included in the interstate system. Congress, in writing the 1956 act, passed the buck to some future Congress on that difficult problem. It simply asked the Bureau of Public Roads to report by January, 1958, as to what reimbursement would cost. Whatever the cost, it should be much less than new parallel roads, and it will have the added advantage of ensuring the early elimination of toll collection on many miles of highway where the tolls now are collected.

Progress in Drafting

If a structure is to be built exactly as the designer conceives it, his ideas must be communicated accurately to the builders. In the past, the only means available for such communication have been the preparation of painstaking drawings and the writing of detailed specifications. Many man-hours of labor have gone into this practice, and these time-consuming operations generally have left the designer little time for thinking. Fortunately, new means are now available for saving drafting time.

Some of these methods, such as model studies and combinations of models, photographs and a little drafting to form finished drawings were described previously (ENR Mar. 24, 1955, p. 47 and Jan. 6, 1955, p. 41). However, on p. 38 of this issue, is a report on a great many more techniques for reducing drafting time and labor. These were developed and have been used successfully by du Pont's engineering department, which designs and constructs all that company's new facilities.

One of the most effective measures employed by du Pont has been to set up design and specification standards. These eliminate a great deal of detailing and note writing, because standard items are not reproduced on drawings but are represented instead by a code. This appears to be a practice that most design offices would find worthwhile to adopt. However, the possibility of different firms adopting different codes raises the question as to whether it might be profitable to set up universal standards and codes, which all designers could adopt and thus make it unnecessary for builders to become familiar with a multitude of systems.

Other practices adopted by du Pont aim principally at simplification—du Pont calls it the Minimum Adequate Design concept. Anything not really essential is not included in drawings. However, over-simplification to the extent of hampering field or fabrication forces has to be avoided. The principle is a good one for all designers.

Furthermore, much drafting time can be saved and often design quality improved by making model studies or by using photographs instead of drawings or both.

If only a few of du Pont's findings were adopted on a wide scale, we will have made substantial progress in drafting.

Universalconstructiontalken?

A humorous glossary of pidgin German terms has been concocted at the Air Force's Air Research and Development Command in Baltimore, a missile development center where German scientists apparently have had quite some influence.

Examples: A rocket engine is called a Firenschpitter mit smoken-und-schnorten. Liquid rocket translates into Das Skwirten Jucenkind Firenschpitter. A nuclear warhead is Das Eargeschplitten Laudenboomer. And the fellow who worries over building of such not-really-so-comic contrivances is the project engineer, Das Schwettenoudter.

Now all of this delightful nonsense leads us to wonder what a construction super in Afghanistan calls a carrying scraper so that his native operators will know what he means. (Or what do they, the natives, call it to be sure that he, the foreigner, will comprehend?) Just as a helicopter is as universally a whirlybird and a scraper quite generally is a pan, there must be scores of extralingual improvisations U. S. constructors around the world have coined to break through language barriers in the lands where they work. The armed services are famed for their picturesque speech—some of it quite printable. Has construction a universal jargon of any distinction or extent? For example, one Air Force expression might transplant directly into construction: The bosses are called Das Oberbaldengrupe. What contribution can you offer and authenticate?

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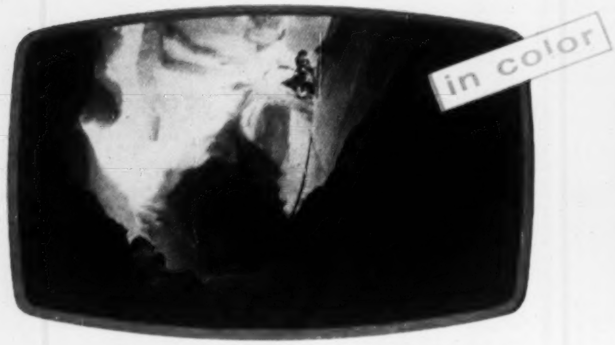

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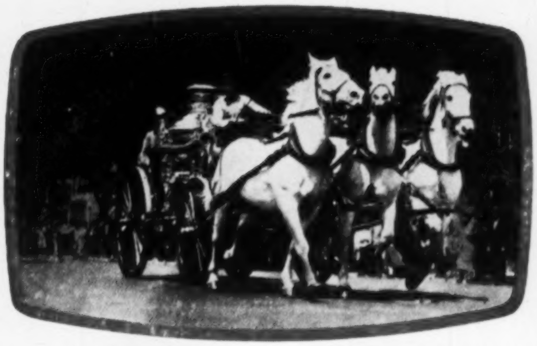

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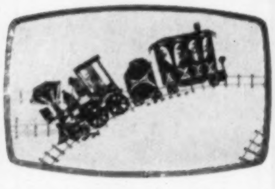

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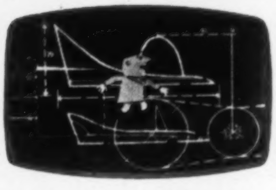

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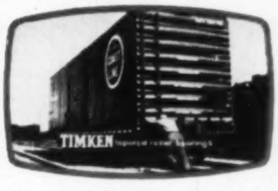

See One man push a freight car all by himself.

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